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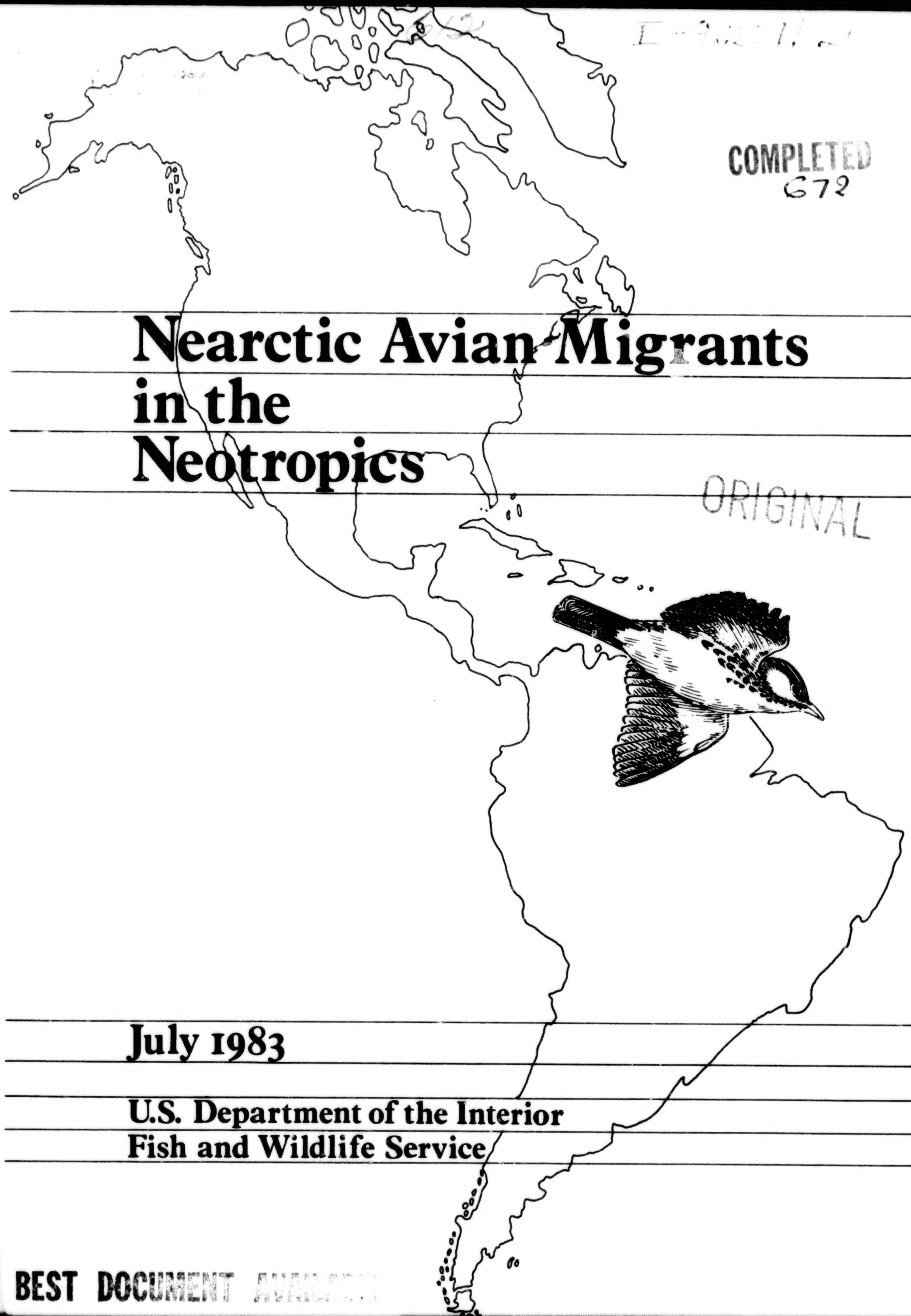

Nearctic Avian Migrants in the Neotropics

ORIGINAL

July 1983

U.S. Department of the Interior
Fish and Wildlife Service

This document represents a synthesis of available information on nearctic migrants in the neotropics. It has been produced in cooperation with the World Wildlife Fund as a contribution toward a better understanding of migratory bird management needs and opportunities in the Western Hemisphere. The recommendations contained herein are those of the authors and do not necessarily reflect the views of the Fish and Wildlife Service or the World Wildlife Fund-U.S.

Funding Provided by:

Fish and Wildlife Service
U.S. Department of the Interior
Washington, D.C. 20240

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NEARCTIC AVIAN MIGRANTS IN THE NEOTROPICS

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EXECUTIVE SUMMARY

1. Three hundred and thirty-two of the 650 species (51%) of birds which make up the avifauna of the United States are nearctic migrants that winter in the neotropics.

2. Populations of these species spend 1/2 to 2/3 of their life cycle outside of the United States in tropical communities.

3. Every major habitat type in the neotropics supports some nearctic migrants; 120 species inhabit shrub-steppe environments, 105 species winter in aquatic habitats, while 107 live primarily in various types of neotropical forest.

4. The percentage of migrant species in tropical forest communities varies from a low of 4% in montane wet forest of Colombia to 51% in the gallery forest of Colima, Mexico.

5. Migrants, like many resident species, can also be found in various types of second growth. Three explanations are suggested for this behavior:

a. resemblance of certain seral stages to mature stages of other habitats.

b. resemblance of some facet of seral stage structure to various aspects of mature habitats.

c. the presence of temporarily abundant, easily harvested resources.

6. Migrants have broad dietary preferences and many species change their diets according to what is available during different seasons.

The same behavior is seen in many resident species as well.

7. Of the 10 food use categories chosen, by far the largest percentage of migrant species (82%) include arboreal invertebrates in their diet, followed by aquatic invertebrates (38%) and fruit (32%).

8. Migrants are not excluded by residents from mature tropical communities or the stable resources of those communities. Many show long-term fidelity, remaining on a site throughout a winter season and often returning to the same site in subsequent seasons.

9. Many species of migrants defend winter territories against conspecifics as a means of assuring limited resources for their own use. This sort of intraspecific competition indicates that resources can be scarce during the winter season and that many migrant populations are limited during such times.

10. Migrants, like residents, function as integral members of the tropical communities that they inhabit.

11. Migrants of some species attend multispecies flocks in tropical forest. The main benefit derived from this behavior is most likely related to predator avoidance.

12. As members of neotropical communities, migrants affect community structure and function in subtle ways. One of the best documented of these effects relates to fruiting periods of tropical trees, some of which peak during the passage of transients.

13. Forty-eight percent of all nearctic migrant species have populations of conspecifics that breed in the neotropics. Seventy-eight percent have either congeners or conspecifics that breed in the tropics.

These figures along with the data on wintering ecology, indicate that many migrant species are essentially tropical birds which evolved the habit of migration as a means of periodically exploiting temperate habitats in which food was more abundant, competitors were fewer, predation was lower, and reproductive success greater.

14. Nearctic migrants depend on tropical communities for survival. The near extinction of Kirtland's Warbler and Bachman's Warbler and the decimation of the Whitethroat in Europe may be examples of what effect wintering ground habitat destruction can have on migrant populations.

15. There is evidence from several sources to indicate that U.S. breeding populations of certain nearctic migrants are presently declining. The most probable reason for these declines in several cases is destruction of wintering habitat.

16. All tropical habitats are threatened by rapid human population growth and uncontrolled development. Wetlands are being drained and polluted. Grasslands are being plowed. Forests are being cleared. In fact experts predict that little will be left of forests in Middle America and the West Indies by the year 1990.

17. Our best hope for preserving our nearctic migrant birds is to accept the biological reality that they constitute an internationally shared resource that can be protected only through international cooperation in policy formulation, research, and management.

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I. INTRODUCTION

Nearctic migrants compose a significant portion of the avifauna of North America: 332 of the 650 or so species that occur regularly on this continent north of Mexico (Appendix 1) (Table 1). They constitute a highly visible, aesthetically appealing and economically important (hunting, agriculture, tourism) resource.

Their breeding biology has been studied intensively and is relatively well understood. Public and private organizations, aware of the need to conserve and enhance these avian populations, have funded research, set aside habitat, and attempted to educate the public with regard to the importance of these avian resources. However, most nearctic migrants spend one half to two thirds of their life cycle hundreds or even thousands of kilometers away from these good intentions, in neotropical stopover and wintering areas.

Knowledge concerning the non-breeding period of the life cycle is central to an understanding of migrant biology and conservation. There is mounting evidence that the non-breeding phase is the more critical period in terms of survival for many species of migrants (2267, 2391, 2731, 2673, 2535, 2390)*. Yet the abundance, distribution and ecology of migrants during periods of time spent away from the breeding area are poorly understood. This problem is especially critical in view of the rapid habitat destruction currently taking place in the neotropics.

*Numbers in parentheses refer to citations in the Bibliography (Appendix 6).

Table 1. Breakdown of the Total Number of Nearctic Migrants by Family.

Latin Family Name	Common Family Name	Number of Nearctic Migrant Species
Podicipedidae	Grebes	3
Pelecanidae	Pelicans	2
Phalacrocoracidae	Cormorants	2
Anhingidae	Anhingas	1
Ardeidae	Herons, Egrets, Bitterns	12
Ciconiidae	Storks	1
Threskiornithidae	Ibises, Spoonbills	4
Anatidae	Ducks, Geese, Swans	20
Cathartidae	New World Vultures	2
Accipitridae	Hawks, Kites, Eagles	10
Pandionidae	Osprey	1
Falconidae	Falcons	4
Gruidae	Cranes	2
Rallidae	Rails, Coots, Gallinules	7
Haematopodidae	Oystercatchers	1
Charadriidae	Plovers	8
Scolopacidae	Sandpipers	27
Recurvirostridae	Avocets, Stilts	2
Phalaropodidae	Phalaropes	3
Laridae	Gulls, Terns	20
Rynchopidae	Skimmers	1
Columbidae	Doves, Pigeons	5

Table 1. Continued.

Latin Family Name	Common Family Name	Number of Nearctic Migrant Species
Cuculidae	Cuckoos	3
Strigidae	Owls	3
Caprimulgidae	Nighthawks	5
Apodidae	Swifts	4
Trochilidae	Hummingbirds	13
Trogonidae	Trogons	1
Alcedinidae	Kingfishers	1
Picidae	Woodpeckers	2
Tyrannidae	Tyrant Flycatchers	30
Hirundinidae	Swallows	8
Troglodytidae	Wrens	3
Mimidae	Catbirds, Mockingbirds, Thrashers	2
Turdidae	Thrushes, Solitaires, Bluebirds	10
Sylviidae	Old World Warblers	2
Motacillidae	Pipits, Wagtails	2
Bombycillidae	Waxwings	1
Laniidae	Shrikes	1
Vireonidae	Vireos	10
Parulidae	Wood Warblers	50
Icteridae	Orioles, Blackbirds	13
Thraupidae	Tanagers	4
Fringillidae	Finches	26

The United States Fish and Wildlife Service, in cooperation with the World Wildlife Fund, has instituted a program designed to obtain information, develop ideas and identify research and management needs concerning our nearctic migrants. The synthesis of data which follows represents an initial step toward a comprehensive program dealing with migrants as a valuable, internationally shared, natural resource.

For the purposes of this report, a "nearctic migrant" is defined as any Western Hemisphere species, all or part of whose populations breed north of the Tropic of Cancer and winter south of that line, strictly pelagic species excepted (Procellariiformes; Stercorariidae).

For all species considered, the main focus is on that portion of the life cycle spent in the neotropics, though significant work relating to the ecology of migrants is included, regardless of regional relationship.

The term "neotropics" as used herein refers to that region of the Western Hemisphere located between 23°27' N (Tropic of Cancer) and 23°27' S (Tropic of Capricorn). Actually, non-tropical climatic and biogeographic elements extend throughout the neotropics in mountainous regions, and tropical elements extend as far south as Cape Horn (57°S) (2549) and as far north as Bermuda (33°N). Nevertheless, the areas within the boundaries described above include most of the distinctive features associated with the concept of "the tropics".

This report is designed for use by researchers, conservation organizations and legislators interested in problems related to nearctic migrants in the neotropics. The information contained in it is derived from a selective examination of over 3,000 published and unpublished sources and from the helpful input of over 200 researchers from various parts of the Western Hemisphere. All facets of migrant non-breeding biology (except navigation and orientation) and various aspects of their conservation are treated. We hope that the information will be useful in stimulating research, conservation, management, and policy making efforts that will result in conservation of New World biota in general and nearctic migrants in particular.

II. ECOLOGY

Prior to 1970, interest in migrant, non-breeding season ecology was very slight among most ornithologists. The information contained in the Smithsonian Symposium on the Avifauna of Northern Latin America (2816) published on the topic in that year shows how little work had been done on North American birds in the tropics and how little thought had been given to the idea that the non-breeding portion of the life cycle might be important to migrants.

Of course there was considerable information on distribution, abundance, and anecdotal bits and pieces buried in general reference works or obscure regional treatments; but with a few notable exceptions (2714, 2127, 2880, 2604) there was very little in the way of baseline data or cogent analysis related to migrant, non-breeding ecology.

Since 1970, the amount of raw data and the number of hypotheses on this topic have increased rapidly. As indicated by the Bibliography (Appendix 6) and the List of Scientists (Appendix 8), there are now many researchers at work on problems relating directly to migrant ecology in the neotropics. Still there are broad gaps in our knowledge. Whole groups,such as wetland and shrub-steppe species,and major topics like migrant carrying capacity by habitat remain virtually uninvestigated (3257).

In this chapter on migrant ecology, we will present information that hopefully will help to place migrants in proper perspective as members of tropical communities.

Habitat Use

A central question concerning migrant habitat use in the tropics has focused on migrant ability to occupy stable, mature habitats on a long-term basis. Many researchers have reasoned that migrants should be incapable of competing with resident birds for food in these habitats. However, there are no major New World avian communities that do not include one or more nearctic migrant species (see regional works in Bibliography, Appendix 6). Every habitat that supports avian populations includes migrants. The habitat preferences for non-breeding nearctic migrants are given in Appendix 2. These data are summzarized in Figure 1. Of the 332 species of nearctic migrants, 105 are found predominantly in aquatic habitats; 120 in desert, grassland, savannah, scrub or beach habitats and 107 in forested areas.

The main debate on habitat use by migrants in the tropics has focused on forest species. It is for these species that the idea of invasion into a complex, stable and established resident community by a hoard of migrants seems most paradoxical; yet nearly 1/3 of all nearctic migrants accomplish this feat each year. The forests they invade vary from the deciduous forests of the Yucatan peninsula to the rain forests of the Amazon, to the highland pines of the Mexican Cordillera (Table 2). In fact, every major type of forest habitat in the tropics has nearctic migrant representatives. As Table 2 shows, the number of migrant species in tropical forests varies considerably depending on the forest type and its geographic location; some Colombian forests having the lowest percentage

Figure 1. Habitat Use by Nearctic Migrants in the Neotropics.

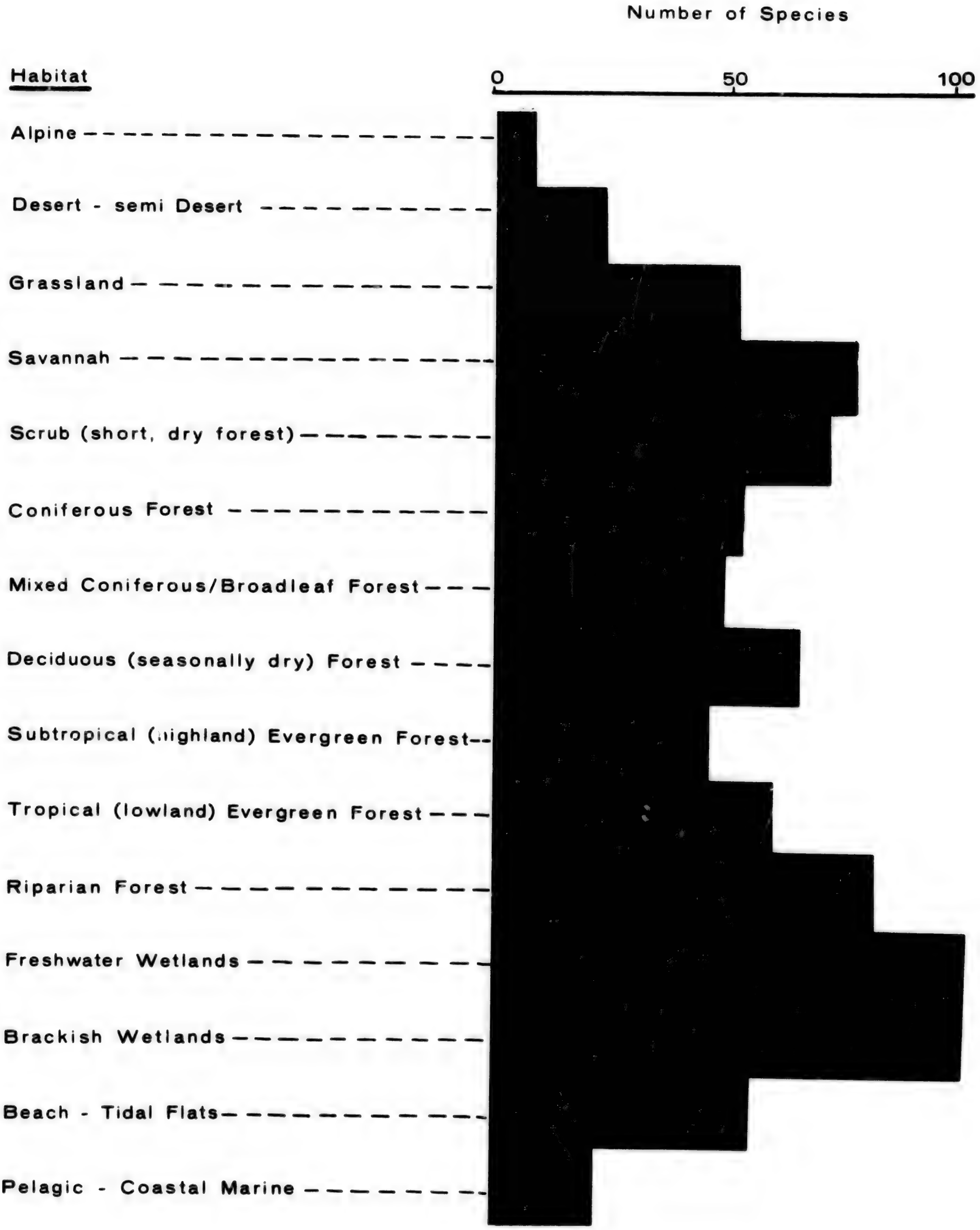


Table 2. Percent of Avifauna Comprised of Migrant Species Wintering in Various Forest Types.

Forest type	Locality	Percent	Investigator(s)
subevergreen tropical	Campeche, Mexico	30-40	Waide (2437)
tall, lowland tropical	Veracruz, Mexico	15	Rappole & Warner (2391)
lower, montane, wet	Santa Marta, Colombia	4	Johnson (2301)
premontane	Alto Yunda, Colombia	5	Hilty (2289)
tropical lowland	Barro Colorado Island, Panama	10	Willis (2451)
tropical lowland	Canal Zone, Panama	6	Karr (2304)
gallery	Colima, Mexico	51	Hutto (365)
tropical deciduous	Nayarit, Mexico	29	" (365)
oak	Guadalajara, Mexico	33	" (365)
pine-oak	Michoacan, Mexico	29	" (365)
pine	" "	24	" (365)
pine-oak-fir	" "	38	" (365)
fir	Mexico, Mexico	13	" (365)
dry lowland	Canal Zone, Panama	31	Hespenheide (2286)
moist lowland	" "	12	" (2286)
premontane	Valle del Cauca, Colombia	14	Orejuela et al. (2380)
Amazonian, lowland	Peru, Ecuador, Bolivia	6	Pearson (2712)

Table 2. Continued

Forest type	Locality	Percent	Investigator(s)
tropical, lowland, wet	Costa Rica	11-12	Stiles (2422)
tropical, premontane	" "	8	" (2422)
montane	" "	6-10	" (2422)
tropical, lowland, dry	" "	22	" (2422)
lowland rain	Nicaragua	13	Howell (2296)
tropical	St. Croix, Lesser Antilles	49	Rappole - unpubl. data

of migrant representation. However, the implications are clear. Migrants use forest habitats in the neotropics.

Migrants of some species as well as many residents are found in seral stages or "second growth" of various types. As primary or climax forest disappears in the neotropics, the use of second growth assumes greater and greater importance. Questions of carrying capacity differences and long term suitability of mature versus disturbed habitats have a direct bearing on the survival of many migrants and neotropical residents. This topic is therefore of major relevance to conservationists and managers concerned with preservation of avian resources.

Waide (2437) found that both migrant and resident species used various stages of second growth forest in Yucatan but that species richness in both groups increased with advancing age of the seral stage; the more structurally complex the habitat, the more species of birds that used it, regardless of whether they happened to be endemics or winter residents. Emlen (2257) made a similar discovery in his examination of habitats of varying age and complexity in the Bahamas. Willis (2451), in his comparison of species richness in "young" and "old" forest avifauna on Barro Colorado Island, Panama, found that "young" forest had a higher number of both migrant and resident species than did "old" forest.

Those species that one finds in seral stages can be divided into three main categories: (a) those attracted to the seral stage because of its resemblance to mature stages of other habitat types,(b) those attracted to second growth because some facets of its structure are comparable to those found in habitats otherwise very different in appearance, and(c) those attracted to the area by temporary resource abundance.

(a) As an example of the first category, Cattle Egrets, anis, Indigo Buntings, Yellow-rumped Warblers, seedeaters, etc. can be found in 1-2 year old second growth rain forest because at this stage the vegetation resembles a scrub or savannah habitat.

(b) Examples of the second category include Lesser Greenlets (*Hylophilus decurtatus*), American Redstarts, Yellow-throated Euphonias (*Euphonia lauta*), and Blue-gray Gnatcatchers; birds that are found in the canopy of mature tropical lowland forest but can also be found in the canopy of early seral stages. Stiles (2422) measured this phenomenon in a variety of forest types in Costa Rica. He found that for both permanent and winter resident species"...70-95 percent of the birds occurring in the canopy regularly follow the foliage-air interface down along the edges."

Thus it is not surprising that migrants are often evident in second growth forest habitat as long as it is similar to forest canopy.

Unfortunately not all species of migrants are canopy species and many migrants like many residents simply disappear when mature forest is destroyed, while those still remaining in the disturbed habitat may not represent normal, viable populations. Rappole & Morton (ms) recently conducted a study of 1 year old second growth (1-2 m in height) bordering rain forest in Veracruz. They found that while some migrant species were territorial and showed long-term site fidelity (Least Flycatcher, Common Yellowthroat, Orange-crowned Warbler, Yellow-breasted Chat) other species (Wilson's Warbler, Magnolia Warbler, White-eyed Vireo) were moving through the disturbed habitat rather than staying and using the resources over extended periods of time (several months in neighboring forests). This movement of individuals occurred in late November and early December long after migration of these species through this region has ceased. Apparently resources were not sufficient to allow members of these species to remain on the site through the winter.

(c) Examples of the third category, those species attracted to seral stages by temporary resource abundance, will be discussed below under "Food Use".

As indicated earlier, something less than 1/3 of all migrants are forest-related yet most of the debate concerning displacement of migrants by residents has centered on these species. Very little ecological work has been done on aquatic or shrub-steppe species (see Appendix 6). In general the assumption seems to have been that these birds occupy niches very similar to those occupied by them in temperate regions.

Actual status (whether migratory or not) of waterbird populations is very poorly known in many cases. An examination of the "resident" waterbird faunas of the Panama Canal Zone (525) reveals that 62% of this assemblage has other populations that are nearctic migrants.

Furthermore, band recoveries have shown that permanent and nearctic winter residents of some of the species coexist in Middle America during the period corresponding to nearctic winter (2679, 2629, 2630, 1536, 1537, 1542). Habitat use comparisons and other relationships that may exist between coexisting migrant and resident populations of aquatic species is an important area for research that is as yet untouched.

Exclusion of migrants by residents from scrub, grassland and desert habitats has never received much interest from New World scientists, although Morel & Bourlière (2357) made something of a case for this phenomenon in Senegal. Presumably, if the "resident exclusion" phenomenon exists in other habitats it should also occur in these harsh environments, perhaps to an even greater or at least more obvious extent. The resident species within these environments should be highly adapted to exploiting the meager resources available. Myers (1728:48) in his studies of shorebirds in pampas and beach habitats in Argentina found no evidence that migrants were being excluded from the stable resources of these communities. He found that, "Within both migrants and residents there are spectrums [sic] of exploitation systems, each adapted to a critical set of species-specific resources." He concluded that there is no generalized "migrant" or "resident" strategy for resource exploitation. In addition to this evidence, there are many arid and semi-arid zone species of migrants with congeners or conspecifics that are resident members of tropical communities, indicating a long evolutionary association (Appendix 1).

Food Use

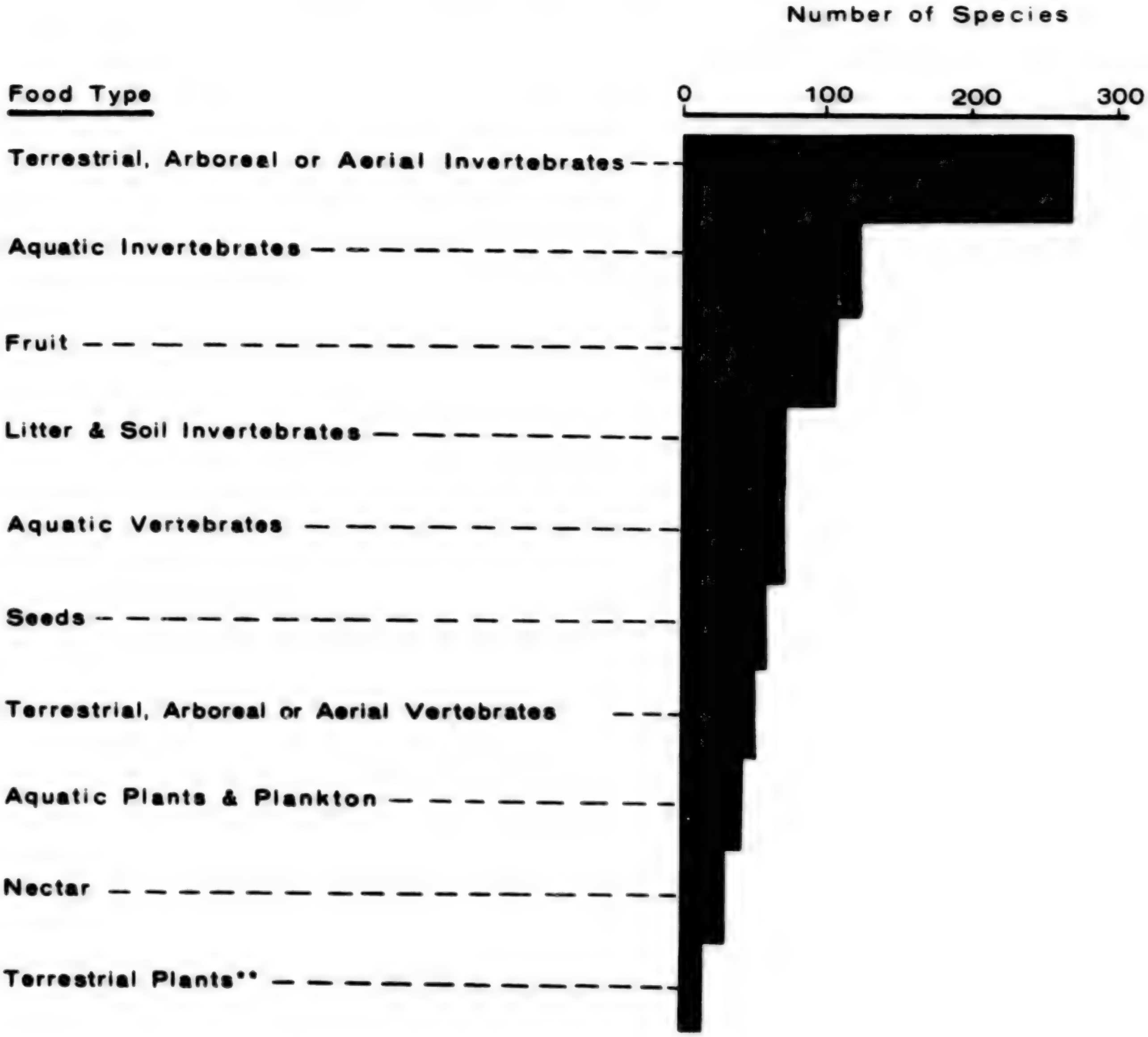
Food use is one of the primary components of the niche and consequently is a vital element in determining the ecological interrelationships of migrants. Despite the critical nature of this aspect of avian ecology, food use habits of migrants are poorly known and poorly understood. Something of what is known concerning migrant food habits is shown in Appendix 3 and summarized in Figure 2.

There has been a tendency to categorize a given species as a consumer of a specific food type. However, as Morton (1946) and others have found, migrants and many other species undergo seasonal changes in their diet. This behavior is common to nearly all mobile species that exist in fluctuating environments. There are few such species that will not take advantage of an easily harvested resource even if they are poorly adapted to compete for it under circumstances when the resource is scarce.

Appendix 3 clearly illustrates this point for migrants. Many species even though apparently specialized morphologically for capturing insects take a considerable portion of fleshy fruit during their stay in the tropics. For example, the Eastern Kingbird, with a broad, flat bill adapted for catching flying insects, eats a large amount of fruit during its tropical residence. Furthermore, the schedule of its extensive movements within the tropics apparently is tied to patterns of fruit abundance that undergo seasonal change (1946).

It has been proposed that taking advantage of easily harvested resources, e.g., fruit, has been turned into a niche of sorts by migrants out of necessity (2387, 2284, 2307, 2447). The reasoning behind this argument is that the tropical environment is so rich that surpluses are continually being produced in different parts of that environment (1907, 2662).

Figure 2. Food Use by Nearctic Migrants*.



* Based on Appendix 3.

**Plant parts other than fruits and seeds - e.g. Leaves, buds, sap.

There is no question that migrants, like other species, exploit resource concentrations. Many authors have described multi-species congregations at resources as diverse as midge swarms (2367), ant raids (2447), monarch butterfly roosts (2233), fruiting trees (2329, 2289), flowering plants (1904, 1907), burning fields (2234), garbage dumps (1814), fish kills, bird feeders, etc., etc. Some workers have even described in detail the levels of intra- and interspecific competitive interaction that occurs at these concentrations, apparently assuming that the squabbling at these normally ephemeral or artificial resources was the most important aspect of the niche for the species involved. For most migrants, this assumption is not true. The migrant catbirds, thrushes, vireos, flycatchers, warblers, and even many of the resident species (2292, 2411) that use fruits as a resource are not obligate frugivores nor are they wanderers.

It has been assumed that when the bird left the fruiting tree, ant swarm, or flower patch it left for some other ephemeral resource. This may be true for transients or "floaters", i.e. individuals unable to compete with conspecifics for stable resources in the community (2391). However, long-term banding studies show that members of most migrant and resident species, including many of those seen at resource concentrations, have distinct home ranges and show site fidelity throughout a winter season.

Table 3 summarizes results from a number of studies which indicate that migrants return to the same site year after year. Recapture data

Table 3. Site Fidelity of Nearctic Migrants to Winter Quarters.

Species	Locality*
Blue-winged Teal	Panama (1602)
Semipalmated Plover	Costa Rica (204)
Spotted Sandpiper	" " (204)
Semipalmated Sandpiper	" " (204)
Western Sandpiper	" " (204)
Short-billed Dowitcher	" " (204)
Yellow-bellied Sapsucker	Belize (2708)
Great Crested Flycatcher	Mexico (2644), Belize (2708)
Yellow-bellied "	" (2645)
Least "	" (2391,2645)
Olive-sided "	Belize (2708)
Rough-winged Swallow	" (2708)
Gray Catbird	" (2707), Mexico (2645)
Wood Thrush	Mexico (2391)
Ruby-crowned Kinglet	California (2003)
White-eyed Vireo	Mexico (2645)
Solitary Vireo	" (2645)
Black-and-white Warbler	" (2645), Panama (2686), El Salvador (2754), Hispaniola (2770), Puerto Rico (2647), Jamaica (2639)
Swainson's Warbler	Jamaica (2639)

Table 3. Continued.

Species	Locality*
Worm-eating Warbler	Mexico (2645,2391), Panama (2686), Hispaniola (2770), Jamaica (2639)
Tennessee "	Panama (2686), El Salvador (2755)
Parula "	Jamaica (2639), Hispaniola (2770)
Yellow "	Belize (2708), El Salvador (2755)
Magnolia "	" (2708), " " (2755) Mexico (2645,2391)
Cape May "	Hispaniola (2770)
Black-throated Blue Warbler	" (2770), Jamaica (2639)
Townsend's "	El Salvador (2753)
Black-throated Green "	Mexico (2645)
Chestnut-sided "	Panama (2685)
Prairie "	Jamaica (2639), Hispaniola (2770), Puerto Rico (2647)
Palm "	Hispaniola (2770)
Ovenbird	Mexico (2645, 2391), Belize (2708), El Salvador (2755), Hispaniola (2770), Jamaica (2639), Puerto Rico (2647), Panama (2686)
Northern Waterthrush	Venezuela (2127), Panama (2686), Jamaica (2639), Trindad (2128), Belize (2708)
Louisiana "	Mexico (2391)
Kentucky Warbler	Mexico (2645,2391), Panama (2686)
Mourning "	Panama (2686)
MacGillivray's "	Mexico (2645), El Salvador (2755)

Table 3. Continued.

Species	Locality*
Common Yellowthroat	Hispaniola (2770), Belize (2708), El Salvador (2755)
Yellow-breasted Chat	Mexico (2645), Panama (2686), Belize (2708), El Salvador (2755)
Hooded Warbler	Mexico (2645,2391), Belize (2708)
Wilson's "	" (2645,2391), " (2708) El Salvador (2755)
Canada "	Panama (2686)
American Redstart	Belize (2708), Puerto Rico (2647), Hispaniola (2770)
Orchard Oriole	Belize (2708)
Northern "	Panama (2686)
Summer Tanager	" (2686), Belize (2708)
Rose-breasted Grosbeak	Belize (2708)
Blue "	" (2708)
Indigo Bunting	Guatemala (250), Belize (2708)
Painted Bunting	Mexico (2645), El Salvador (2755)

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*Numbers following locality refer to citations listed in the Bibliography (Appendix 6) in which the site fidelity information is given.

also demonstrate that many individuals remain at a site for the entire winter season (2391, 2686). Furthermore, studies of behavior of migrants in wintering and stopover habitats show that several species defend transient or winter territories against conspecifics. Table 4 illustrates that this phenomenon is not characteristic of a species in one particular region or for one particular type of bird but is found in many regions, habitat types and taxonomic groups.

Territoriality is a way of exploiting a certain type of dispersed, critical and renewable resource, e.g. leaf-eating insects or bark beetles. Its long-term, site-specific use as a behavioral tactic by individuals of many species of migrants indicates that they are competing for resources within a wide variety of tropical wetland forest, scrub, and grassland communities. The energy and time invested in defense of these territories further indicate that the resources defended are critical for the defender's survival (2227).

In some parts of the tropics, migrants arrive at a time when insect resources appear to be at their peak (365, 2712). However, in parts of the Middle American tropics, migrants arrive at the end of the rainy season when insect resources are steadily declining toward lows that will be reached and maintained during most of the wintering period (2380, 2422, 2437, 2286, 2367, 2257, 2624, 2299). Thus, many migrants join tropical communities when competition for resources is most intense. Young produced by the endemics and swarms of incoming adult and young migrants are competing for dwindling or, at best, stable resources. If migrants

Table 4. Intraspecific Territoriality in Transient and Wintering Migrants.

Species	Locality[1] & Status[2]
Broad-winged Hawk	Panama - W[1] (1619)[2]
Semipalmated Plover	California, U.S.A. - T (1735), W (1729)
Snowy Plover	" " - W (1729)
Killdeer	" " " (1729)
Golden Plover	Argentina - W (1729)
Black-bellied Plover	" " (1729), California, U.S.A - W (1729)
Eurasian Curlew	Scotland - W (1705)
Whimbrel	California, U.S.A - W (1729)
Spotted Sandpiper	" " - " (1729)
Redshank	Scotland - W (1705)
Greater Yellowlegs	Argentina - W (1729)
Lesser "	" " (1729)
Wandering Tattler	California, U.S.A - W (1729)
Willet	" " - " (1729), T (1735)
Pectoral Sandpiper	Manitoba, Canada - T (1792), Argentina - W (1729)
White-rumped "	Argentina - W (1729)
Baird's "	" - " (1729)
Least "	California, U.S.A. - W(1729)
Semipalmated "	U.S.A. Atlantic Coast - T (1735), Manitoba, Canada - T (1792)
Western Sandpiper	California, U.S.A. - T (1735), W (1729)

Table 4. Continued.

Species	Locality[1] & Status[2]
Sanderling	California, U.S.A - T (1735) W (1729), Argentina - W (1729)
Buff-breasted Sandpiper	Argentina - W (1729)
Hudsonian Godwit	" - " (1729)
Ruby-throated Hummingbird	Colima & Jalisco, Mexico - W (1904)
Black-chinned "	" & " " - " (1904)
Rufous "	" & " " - " (1904) Arizona, U.S.A. - T (1931), California, U.S.A. - T (1926)
Allen's "	Colima & Jalisco, Mexico - W (1904)
Calliope "	" & " " - " (1904)
Great Crested Flycatcher	Panama - W (2367)
Eastern Phoebe	Texas, U.S.A. - W (Rappole, unpubl. data)
Yellow-bellied Flycatcher	Veracruz, Mexico - W (2391)
Acadian "	Panama - W (2367)
Traill's & Alder "	" - " (1960), Peru - W (1961)
Least "	Vercruz, Mexico - W (2391)
Eastern Wood Pewee	Peru - W (1938)
House Wren	Texas, U.S.A. - W (Rappole, unpubl. data)
Winter "	" " - " (" " ")
Gray Catbird	Veracruz, Mexico - W (2391)
Wood Thrush	" " - " (2391), Panama - W (2353)
Swainson's "	Colombia - W (2353)

Table 4. Continued.

Species	Locality[1] & Status[2]
Townsend's Solitaire	California, U.S.A. - W (1997)
Ruby-crowned Kinglet	" " - " (2003)
Spectacled Warbler	Libya - W (2445)
Sardinian "	" - " (2445)
Stonechat	" - " (2445)
White Wagtail	Israel - W (2458)
White-eyed Vireo	Veracruz, Mexico - W (2391)
Yellow-throated "	Panama - W (2367)
Black-and-white Warbler	" - " (2367)
Worm-eating "	Veracruz, Mexico - W (2391)
Golden-winged "	Panama - W (2367), Costa Rica - W (2388)
Blue-winged "	" - " (2367)
Orange-crowned "	Veracruz, Mexico - W (2391)
Yellow "	Panama - W (2369), Veracruz, Mexico - W (2391)
Magnolia "	Veracruz, Mexico - W (2391)
Black-throated Green "	" " - " (2391)
Chestnut-sided "	Panama - W (2367)
Bay-breasted "	" - " (2367)
Ovenbird	Veracruz, Mexico - W (2391)
Northern Waterthrush	Venezuela - T, W (2126, 2127), Texas, U.S.A. - T (2722), Panama - W (2367)

Table 4. Continued.

Species	Locality[1] & Status[2]
Louisiana Waterthrush	Cuba - W (2034), Panama - W (2367), Veracruz, Mexico - W (2391)
Kentucky Warbler	Veracruz, Mexico - W (2391), Panama - W (2367)
Mourning "	Panama - W (2367)
Common Yellowthroat	Veracruz, Mexico - W (2391)
Yellow-breasted Chat	" " - " (2391)
Hooded Warbler	" " - " (2391)
Wilson's "	" " - " (2391), Panama - W (2369)
American Redstart	Veracruz, Mexico - W (2391), Venezuela - W (2127)
Orchard Oriole	Panama - W (2367)
Summer Tanager	Veracruz, Mexico - W (2391)

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[1] W = Wintering ground territoriality recorded.
T = Transient stopover point territoriality recorded.

[2] ( ) - Numbers in parentheses refer to citations in the Bibliography (Appendix 6) in which territoriality data are presented.

were not adapted to compete using stable niches in tropical communities, they could not survive. Even the temporary resource flushes would be used up by wandering young of resident species forced out of their normal habitats and niches by population pressure at this critical time of the year. That such wanderings of even the most sedentary species of tropical residents occurs is well documented (2449, 2261).

We conclude from these considerations that wintering migrants exploit resources as full-fledged members in a variety of mature tropical communities, a conclusion reached by a number of researchers who have performed long-term studies of tropical community ecology (2126, 2127, 2405, 2391, 2422, 2257, 1728, 2048, 1619).

Just what the migrant "niche" consists of has been obscured by the search for the "ecological counterpart"; a species that supposedly pre-empts the niche of the migrant in tropical communities (2343, 2447). Research in several tropical communities has failed to reveal a migrant-ecological counterpart relationship. Rather as evidence has accumulated to indicate that migrants are integral components of tropical communities, the need for an "ecological counterpart" has disappeared. However, along with its disappearance, another question has arisen. If migrants have niches in tropical communities, what happens to resources used by migrants during the months when migrants are absent? The conclusion reached by several workers is that the exodus of migrants from tropical communities creates an "ecological vacuum" which no resident species of birds, bats or other organisms are adapted to fill (2391, 1938. 2257, 2235, 198).

In many parts of the tropics this "ecological vacuum" is largely illusory; there is in fact little impetus to force residents to try to exploit niches vacated by migrants because food resources reach their highest levels during the period of migrant absence (2422). For these areas, the time of migrant departure coincides with the end of the dry season when fruits and nectar resources peak; and the beginning of the rainy season when insect resources peak (2409, 2422).

A second factor selecting against adaptations by residents to fill migrant niches is that, "The environment into which a potential competitor would have to evolve is changing radically at roughly six-month intervals. Any permanent resident attempting to capitalize on this situation would have to be adapted to compete in two different environments simultaneously." (2391).

Thus, the question of an ecological counterpart for migrant species within their winter range seems to have very little factual or theoretical basis (2422). However, could counterparts exist at the peripheries of the winter range, preventing further expansion of the species into tropical areas? There are few data on this question, but an examination of the avifauna of the regions bordering migrant ranges, particularly in South America, argues against this possibility. There is no obvious "Chestnut-sided Warbler" counterpart or "Bay-breasted Warbler" counterpart that prevents these species from expanding southward into South America. Rather there appears to be a complex of species that collectively may pre-empt various parts of the niche of these species. A second possibility is that, like the Limpkin whose distribution is determined by the distribution of Pomacea snails which constitute its main food source, the niche of these species does not exist beyond their present range.

Until recently, little work had been done to determine the characteristics of the niches of migrants in the tropics. Studies by Chipley (2093), Rabenold (2092), and Bennett (2140) have signalled an awakening of interest in the ecological complexities of species that experience such dramatic shifts in habitat use during the course of an annual cycle. Each of these workers studied members of the family Parulidae. They compared niche breadth on the wintering ground with that on the breeding ground, and then formulated a theory of migrant ecology to explain his or her findings. The results and conclusions from the three studies are summarized in Table 5.

These three niche studies illustrate the kinds of problems that plague many studies of this type, particularly those related to the study of migrants. Namely, how does one measure the niche; and when the parameters chosen have been measured, what do the numbers say about the way the animal lives? If the animal is not in a situation where resources are limiting, then the observed foraging behaviors may have little to do with niche structure; or the parameters chosen for measurement may not accurately reflect the important variables in the species niche. Two fables illustrating these problems especially as they pertain to migrants are given below.

Table 5. Results of Three Studies on Migrant Wood Warblers Comparing Wintering vs. Breeding Ground Niche Breadth.

Species	Investigator	Wintering Ground Niche Breadth	Breeding Ground Niche Breadth	Explanation
Blackburnian Warbler	Chipley (2093)	Broad	Narrow	The presence of fewer competitors on the wintering ground allows members of this species to use more foraging strategies.
Black-throated Green Warbler	Rabenold (2092)	Broad	Narrow	The presence of more competitors on the wintering ground forces members of this species to use more foraging strategies.
American Redstart	Bennett (2140)	Narrow	Broad	The presence of more competitors on the wintering ground forces members of this species to use fewer foraging strategies.

Fable 1. - Assume that species A is adapted to glean green insects from leaves. It has inherited several behaviors evolved over generations of natural selection that enable it to be very good at finding and capturing prey. These include: (1) stealthy approach,(2) stretching, peering, and careful examination of leaf surfaces,(3) quick gleaning movement, 4) a swift flycatching movement in the event that the insect flies as the bird is completing its site examination. If in Habitat X, Mayflies (Ephemeroptera) are superabundant, the bird casts aside its entire range of foraging behaviors except that which is appropriate for obtaining the superabundant prey, in this case, flycatching. Or perhaps inch worms (Lepidoptera: Geometridae) are superabundant so the bird uses only the gleaning movement without regard for its usual stalking, peering and flycatching behaviors.

In contrast to Habitat X where food is abundant, food is very scarce in Habitat Y. Intraspecific and interspecific competition for these resources are intense. Individuals of species A use the entire range of foraging behaviors and techniques in this situation. They must because it is these that they can use better than any other species.

An ecologist, observing the bird in Habitat X might conclude that it had a very narrow range of foraging behaviors. The same ecologist observing the same bird in Habitat Y might conclude that the bird had a very wide range of foraging behaviors. These data might lead the ecologist to conclude that the bird had a broad niche in Habitat Y and a narrow niche in Habitat X, whereas the comparison has nothing to do with niche breadth, but merely reflects the bird's reaction to different levels of resource availability.

Fable 2. - Suppose that the foraging niche of species B involves exploring clumps of dead leaves for arthropod eggs and larvae. In Habitat X, 90% of these leaf clumps occur on the forest floor, and the bird accordingly spends 90% of its foraging time on the forest floor.

In Habitat Y, clumps of dead leaves are scattered throughout several levels of the forest because the forest is evergreen, the leaves are larger, and there are more intermediate-sized trees. Members of species B spend equal amounts of time at a number of different levels in the forest. An ecologist, observing species B in both habitats and using foraging height as an important parameter of niche breadth, might conclude that species B had a broader niche in Habitat Y than in Habitat X, despite the fact that, in this case, comparative foraging height is irrelevant to the bird's niche breadth.

The purpose of these examples is to illustrate some of the formidable difficulties that can be expected in comparing niche breadth for a species during different stages of its annual cycle. We believe problems of this type are responsible for the discrepancies in findings and interpretations in the investigations summarized in Table 5 and other studies of comparative niche breadth which lack firm knowledge of whether resources are limiting and how they might be distributed in the habits compared. If resources are not limiting or relative distribution of resources is not understood, then the niche parameters measured, and the comparisons and resultant speculations regarding "ecological release" and other reflections on levels of competition in the different habitats are of little value (2442).

Wiens (2442) and Verner (2433) have reviewed the scarcity of data available to indicate that food is limiting for adult birds on the breeding ground. There are better indications that food can at times be limiting during migration or on the wintering ground (Table 4). But, like the temperate zone, many parts of the tropics also vary between cycles of "boom and bust." Both migrants and residents take advantage of the "boom" periods, completely deserting their "normal" niches to skim excesses at reduced energy cost.

There are many examples of this behavior in the literature. Skutch (2411) records 95 species of birds that feed on arillate seeds, including many species of normally insectivorous permanent residents and migrants. Similar situations have been reported by other investigators. Morton (2367) reports observing Bay-breasted Warblers, Tennessee Warblers, Prothonotary Warblers, a Northern Waterthrush, a Royal Flycatcher, a Social Flycatcher, and a Tropical Mockingbird feeding together in sparse, short grass in a cleared pasture where a swarm of midges (Chironomidae) had concentrated near a sewage seep.

Another observation by Morton (2363, 2367) increases the significance of this phenomenon and may help to explain some of the misconceptions concerning migrant niches and resource use in the tropics.

Bay-breasted Warblers arrive on their wintering grounds in Panama during the latter part of the wet season. Insect resources are low and intraspecific competition for these resources is intense. The birds are often solitary and territorial during this period. However, by late January, fruits and nectar are becoming abundant. Bay-breasted Warblers then abandon their territories and begin foraging in flocks on the abundant resources.

DesGranges & Grant (1904) report a similar situation in a hummingbird community in Colima, Mexico. When migrants arrive, nectar resources are scarce and the migrants spend nearly 100% of their time on small territories, feeding on insects. Later in the season, as flowers become abundant, they and many resident species harvest the energetically less costly nectar resources spending little time in insect foraging.

Calculations of interspecific competition and niche parameters during periods of plenty have little relevance to factors that actually reflect on the species' place in the community. The ability to capitalize on boom and bust cycles in natural communities, is, of course, a part of a species' natural history and many species of tropical residents as well as migrants capitalize on these local fluctuations (1907, 1728). Resident species, common in a region of forest during one season, may be completely absent during the next (1907). How these movements, in either migrants or residents, relate to the species niche is obscure.

Agonistic Interactions Between Migrants and Residents

A number of studies have documented direct migrant-resident interactions in which a resident species actually attacked a migrant (1904, 2447, 2289, 2301). Most reports of these instances come from observations at resource clumps (ant swarms, fruiting trees, flower patches); situations in which, as discussed above, the competition is related to the niche of the participants in ways that are very complex and poorly understood.

Studies that concentrate on observing the day to day activities of migrant individuals in primary habitat types report few interspecific agonistic interactions of any sort, though intraspecific agonistic interactions are often common, particularly just after arrival on wintering sites (2127). Rappole (unpubl. data) recorded fewer than 10 interspecific interactions over 700 hours of observation of migrant and resident behavior in Veracruz rainforest, and the majority of these were between migrant species. Powell (2388), in his observations of tropical foraging flocks, observed 108 interactions, three of which were between migrants and residents. In two of the three conflicts, migrants were the aggressors. Chipley (2235) during roughly 1,000 hours of observation over a 224 day period in Colombia observed 99 agonistic interactions. Of these 85% were intraspecific. Only seven involved interspecific clashes between migrants and residents and in four of these, migrants were the attackers.

There have been few studies of interactions between resident and migrant aquatic or shrub-steppe species. Myers (1728) did record some interactions between migrant and resident shorebirds in Argentina but concluded that "...complexities (of the shorebird community) make it difficult to search [sic] for any overall generalizations about migrant-resident interactions." (1728:48).

We conclude that direct migrant-resident agonistic interactions are of minor importance in the ecology of either group.

Interspecific Flocks

The occurrence of species assemblages that forage in fairly cohesive units throughout a remarkably stable home range has been studied in detail by a number of workers (2245, 2238, 2232, 2388, 2269, 2354, 2364, 2359, 2369, 2412, 2436, 2448, 2230). Moynihan (2369) has analyzed the structure of these flocks in Panama and found that they generally consist of one or more resident nuclear species, often a family group, with individuals of several other species of both migrants and residents joining for various periods of time. Intraspecific interactions between flock members are rare. Birds of some migrant and resident species, which are normally solitary and territorial, will join a flock during the period that the flock remains within the confines of their territories but will not follow the flock beyond the territory boundaries (2369, 2391). Others appear to defend the flock itself as a foraging territory, allowing no other members of the species to join and follow the flocks (Black-and-white Warbler, Worm-eating Warbler, Yellow-throated Vireo, Golden-winged Warbler, Blue-winged Warbler) (2391, 2367).

Benefits for this sort of flocking for nuclear species are uncertain. They may be related to kin selection, optimal foraging patterns, reduction of predation, or other undetermined factors. The benefits to flock joiners and attendants, particularly insectivorous species, e.g., the Black-and-white Warbler, seem largely related to reducing the probability of predation (2448, 2230). By associating with a group of related birds that have some genetic stake in protecting each other, joiners and attendants receive some of the benefits of flocking at little cost.

A logical question then is why are not all migrant insectivores attendants at interspecific flocks instead of only some? This probably has to do with the amount of area required to support the bird in a particular habitat, and the distribution of suitable microhabitat within a habitat. If a territory roughly comparable in size to that of a nuclear species' foraging area is required, then the bird should be an attendant at the flock rather then forage alone since there is little chance that a conspecific could usurp a part of the area and make a living. However, if in this habitat, areas of only .2 - .3 ha are required to support the bird or if there are large areas of unsuitable microhabitats between suitable patches, then the disadvantages of wasted foraging time and energy may outweigh the advantages accrued by increased protection from predators. On the basis of this hypothesis, one would predict that in some habitats, a species would be a continuous flock attendant, while in others it would be a joiner, holding a small territory and foraging with the flock only while flock members were on its territory.

Congregations at fruiting trees, insect swarms, etc. are often composed of species that are not members of the kind of highly organized flocking units discussed above but are temporary aggregations opportunistically exploiting a temporarily abundant resource (2282, 2333, 2329, 2349, 2411, 2367, 2253, 2292).

Intraspecific Flocks

Several species of migrants are often seen in intraspecific aggregations during the non-breeding season. Most of these species have omnivorous, granivorous or frugivorous food habits (Indigo Buntings, Yellow-rumped Warblers, Northern Orioles, Eastern Kingbirds). They exploit resources that are located in disjunct clumps over space and time. Flocking presumably provides a degree of predator protection and may enhance probability of locating a patchy resource (2317, 2440). Occasionally, individuals of species that are normally territorial will associate in flocks at clumped resources (2367, 2391, 2447). These congregations are generally temporary in nature.

Ecological Impact of Migrants in Neotropical Communities

The foregoing discussion of the ecology and behavior of migratory birds in neotropical communities indicates that they are important members of these communities. They are part of the tropical avifauna for several months of the year. Percentages of migrant species in tropical,terrestrial habitats vary from 4% to over 50%. Migrants compose a major percentage of some resource-use guilds (2422, 365). Thus, as members of these communities, migrants, like other species, affect other members in subtle, indirect ways. They are part of the food web, energy pathways, and productivity of the community and affect the evolution of prey and predators within the communities. But do they have a "migrant" impact caused by the massive, semi-annual influx of these species?

Stiles (2422) notes "... Slud (198) and others have suggested that migrants tend to complement the permanent residents ecologically, often fitting into niches seemingly unoccupied by the latter. My own observations are in full agreement - the forest canopy seems much emptier in July!" Also, the period of migrant absence is, in many parts of the tropics, a period of abundance for many food categories (2411). This abundance may be due to climatic effects rather than movements of migrants (2409), though, as discussed below, migrants may also be a factor.

An area in which migrants as a group may have profound effects on tropical communities is in timing of fruit and seed production. Howe & DeSteven (2292) found that the fruiting peak for an understory tree in tropical wet forest of Barro Colorado Island in Panama coincided with passage of transients which fed on the fruits. These transients thereby function as dispersal agents for the tree. They hypothesize that "...the fruiting season of Guarea glabra is adaptively synchronized with northward migration of opportunistically frugivorous North American birds."

Skutch (2411) found a similar relationship, as has Ramos (unpubl. data from Veracruz). McDiarmid et al. (2349) found that fruits of the tropical dry forest species Stemmadenia donnell-smithii were produced mostly at the end of the dry season in April in Costa Rica. The fruits were eaten by 22 species of birds many of which were primarily insectivorous, and several of which were migrants. Morton (1946) hypothesizes that dependence on transient bird species as dispersers may be an important strategy for many tropical forest species.

Other studies indicate an even tighter relationship between migrants and the communities they inhabit. Morton (2173) found that the Orchard Oriole was the most effective pollinator for the tree Erythrina fusca in a Panamanian forest. He suggests that the color and shape of Erythrina flowers indicate a co-evolved relationship between the plant and the common winter resident oriole. Cruden & Toledo (2244) similarly report that several species of nearctic migrants are important pollinators of Erythrina breviflora in Michoacan, Mexico.

Morton (2367) suggests a similar co-evolved relationship between Tennessee Warblers and the flowering tropical forest vine Combretum fructicosum in which the bird benefits from the plant's nectar (and perhaps the bright red "war paint" pollen) and the plant benefits from the outcrossing pollination provided by the bird.

The importance of ephemeral resources in avian diets to the complexity of tropical communities has only just begun to be appreciated by biologists. As an example, fruit availability has far-reaching effects on avian community structure as well as on the plant and insect species composition of the community.

Fruit provides a resource that takes little time to consume, yet can provide large amounts of energy. Omnivorous species often spend most of their time searching for insects yet their energy intake may be based largely on fruit consumption (2364). Without the fruit to provide the energy base, these species might not be able to co-occur with insect-eating specialists because their time/energy budgets would, on average, run in the "red." On the other hand, insect-eating specialists are indirectly benefited by the reduced competition for insects brought about by fruit (and nectar) energy sources available for non-insect specialists.

The far-reaching effects alluded to above are related to plant competition for seed dispersers. Plants apportion their nutrient resources between growth and fruit production to maximize reproduction success. Thus, most plants produce fruits that are not high in "expensive" nutrients such as protein. Instead, they attract dispersers through production of less costly carbohydrates.

Total frugivory in birds is rare since most species must feed protein insect food to fast growing young. The availability of insect protein to birds has resulted in a generally low protein level in plant fruits. Plant nutrient allocation between growth and fruit production has balanced at the less costly fruit nutrients because of the availability of insect protein to the avian component.

Most migrant species are not fruit specialists but many use fruit as a substantial portion of their diet. It is not known to what extent migrants that are opportunistically frugivorous select highly nutritious fruit but most, together with most resident species, consume small fruits that are high in carbohydrates.

During seasons of fruit abundance some small migrants take smaller insects than are consumed when fruit is scarce. For example, the Bay-breasted Warbler takes significantly smaller insects during the Panamanian dry season when fruit is abundant then during the wet season. The co-occurring Chestnut-sided Warbler, which does not switch to fruit as extensively, continues to eat larger insects that satisfy its balance between energy expended hunting and energy reward per insect captured (2367).

There is considerable evidence that migrant species have affected fruiting and flowering periods in tropical plants. R. Greenberg (pers. comm.) reports that fruits of Miconia argentiea and Didymopanax morototoni are eaten almost solely by migrants. Fruit ripening appears to be timed to coincide with migrant wintering periods. Mario Ramos (pers. comm.) reports that Phytolacca (pokeweed) in Veracruz, Mexico apparently times its fruit production for the passage of the Swainson's Thrush and that few other species consume it. These observations constitute strong evidence for the co-evolved nature of migrants and the tropical communities in which they winter.

These few examples from a subject that has received little attention from researchers indicate the degree to which migrants function as integral parts of the tropical systems in which they winter or pass through on migration. Predator-prey systems in which migrants are involved as members of the community food web have yet to be examined in detail, but should yield equally fascinating evolutionary relationships. Holmes and his colleagues (3251) have found that migrants have important effects on larval stages of Lepidoptera during the breeding season in New Hampshire. The timing of insect hatching periods in the tropics similarly may be related to the pressure of insectivorous migrants causing the larval and/or volant stages for many insect species to be produced during periods of migrant absence.

Virtually no work has been done on the ecological impact of aquatic or shrub-steppe migrant species in neotropical communities. Studies of this kind will be complicated by the fact that migrant and resident populations of many aquatic species winter in the same tropical communities.

III. EVOLUTION, DISTRIBUTION, AND ZOOGEOGRAPHY

Migrants are a collection of paradoxes. They leave their summer homes long before there is any food scarcity (2721); travel thousands of kilometers in uncertain weather over hostile environments, stopping at intervals to rebuild fat reserves; finally arriving at destinations in tropical habitats often radically different from those left behind in the temperate zone. When they arrive, they enter complex, species-rich, tropical communities where they must compete for resources with highly specialized endemics, often at periods of the year when resources are at a low ebb (2380, 2422, 2437, 2286, 2367, 2257).

After accomplishing this feat and surviving for five or six months in these communities, they turn around and head north, returning to their temperate breeding areas at a time when resources in many parts of the tropics are approaching their peak (2409, 2411).

The solution to these paradoxes and the key to understanding migrant biology in the tropics was put very simply to Dwain Warner by a Mexican peasant who, when asked by Warner if he was familiar with a particular North American migrant, replied that he was of course familiar with the bird but that Warner was wrong in calling it a North American bird, "It is a Mexican bird" he said, "only it does not breed here."

Many nearctic migrants that winter in the neotropics are neotropical species that happen to breed in the temperate zone (2391, 2422, 1619, 2634, 2604, 2696). Most of these species are derived from neotropical forms which is why they are able to exploit stable resources in these ancient and complex communities. Their systematic affinities are overwhelmingly with neotropical groups (2440, 2546, 2556, 2007). Seventy-eight percent have congeners or conspecifics that currently have breeding populations in the neotropics (Appendix 1). Several species even have permanent, breeding resident and winter resident populations co-existing in the same tropical community or region during certain seasons of the year (Table 6).

Thus the question of why don't migrants breed in the neotropics, which has so intrigued biologists (2155, 2321), is answered by the fact that forty-eight percent of them do (Appendix 1). This point leads to the question of what selection pressures favor migration by some tropical species while others remain (relatively) sedentary.

We suggest that there are several reasons which favor migration to a nearctic breeding area for members of certain tropical species under certain conditions:

1. Due to intense intraspecific competition and high predation rates in populations of many tropical avian species, annual productivity is low (2410, 2261, 2449).

2. Despite low productivity, surviving young exceed amount of food and space available due to longevity of adults (2261, 2449).

3. Some species exploit niches that are common to many habitat types, allowing them the option of at least trying other areas (2422, 2391).

Table 6. Coexistence of Breeding Resident Populations with Wintering Migrant Populations of Conspecifics in the Neotropics.

Species	Locality*
Brown Pelican	Lesser Antilles (822), Netherlands Antilles (646)
Great Blue Heron	Lesser Antilles (822), Panama (524), Montserrat (758)
Green Heron	Lesser Antilles (822), Panama (524), Hispaniola (713)
Black-crowned Night Heron	Hispaniola (713)
Least Bittern	Costa Rica (180), Panama (524)
Turkey Vulture	Panama (524)
Swallow-tailed Kite	" (524)
Red-tailed Hawk	" (524)
Osprey	Venezuela (1478)
Purple Gallinule	Jamaica (717)
Common "	Panama (524)
American Coot	Hispaniola (713)
Wilson's Plover	Panama (524), Netherlands Antilles (646)
Killdeer	Puerto Rico (813), Hispaniola (713)
Common Snipe	Venezuela (1478), Guyana (1325)
Willet	Lesser Antilles (822)
Black-necked Stilt	Panama (524)
Common Tern	Lesser Antilles (822), Netherlands Antilles (646)
Sooty "	Panama (524)

Table 6. Continued.

Species	Locality*
Royal Tern	Lesser Antilles (822)
Black Skimmer	Panama (524)
White-winged Dove	Nicaragua, Guatemala, Honduras (1854)
Mourning "	Panama (524)
Yellow-billed Cuckoo	Hispaniola (713), St. John's, U.S.V.I. (786)
Common Nighthawk	Hispaniola (713), Lesser Antilles (822), Panama (524)
Lesser "	Panama (524)
Vermilion Flycatcher	Veracruz, Mexico (316)
Purple Martin	Guyana (1325), Panama (524), Netherlands Antilles (646)
Red-eyed Vireo	Guyana (1325), Venezuela (1478), Hispaniola (713)
Yellow Warbler	Venezuela (1478), Panama (524)

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*Numbers in parentheses refer to works in the Bibliography (Appendix 6) in which the information was cited.

4. Increased food resources, reduced competition and predation during summer allow much higher reproductive rates in temperate populations relative to populations of the same species in the tropics (2410, 1972).

Given the biological pressures in the tropics, the mobility of birds as a group, and the availability of abundant resources in the nearctic region during the summer months, migration by those species with the proper pre-adaptations is an inevitable result.

That evolution of migration is an on-going process is proven not only by the fact that so many species have both migrant and tropical resident populations but by the data on species like the Cattle Egret in which we have been able to document the actual development of nearctic migratory populations within the past twenty years.

This species, which invaded South America in the late 1800's (886) is a tropical resident throughout most of its range. The first dispersing wanderers arrived in the United States around 1952. Since then, members of the species have been recorded in most of the states in the U.S. as well as many Canadian provinces. Northern populations of the species have been established with breeding records from as far north as New York (48). The populations of these northern breeding egrets are nearctic migrants, arriving in early summer to set up breeding colonies and leaving in autumn for their winter quarters (58).

Nor is the Cattle Egret the only species which has recently developed migratory populations. Louisiana Herons, Snowy Egrets, and Great Egrets were once nearctic migrants in the northeastern United States (45, 41) breeding in colonies as far north as New York and Massachusetts. By the early 1900's, these species were extirpated throughout most of their temperate range, and the Snowy Egret was very nearly extinct in the continental U.S. (53, 48); yet these species have re-established themselves as nearctic migrants and summer breeders in many parts of their former range in less than half a century (58, 48).

Bull (48) provides a graphic description of this process for the Snowy Egret:

"This species, more than any other heron, was valued for its ornamental plumes and consequently suffered severely. It had become almost exterminated by the early 1900's and only because of the strictest protection in 1913 and thereafter escaped possible extinction. At any rate it started to make a comeback by the 1930's and greatly increased along the coast during the next two decades. As a result, it is today the most numerous breeding heron on the south shore of Long Island..."

The process of range expansion and development of migratory populations by tropical species is dynamic and continuous. That there is always pressure forcing dispersal by individuals of even those species that are poorly adapted for temperate environments is evidenced by the number of tropical species reported from the temperate zone each year (Table 7).

The concept of tropical origins for nearctic migrant forces a major shift in zoogeographical thinking concerning these species. Most attention relating to speciation and centers of evolution for nearctic

Table 7. North American Distributional Records for Tropical Species.

Species	North American Locality*	"Normal" Range
Common Black Hawk	Florida (1650)	West Indies; Middle America to S. Arizona & S. Texas
Inca Dove	Oklahoma (2465)	Middle America to S. Arizona & S. Texas
Groove-billed Ani	Colorado (2601) Oklahoma (2487)	Neotropics to S. Texas
Smooth-billed Ani	Georgia (2557)	West Indies to S. Florida
Plain-capped Starthroat	United States (2505)	Middle America to Sonora, Mexico
Violet-crowned Hummingbird	California (2529)	Mexico
Costa's Hummingbird	Canada (1922)	Mexico, SW United States
Rivoli's "	Kansas (1932)	Middle America to S. Arizona
Eared Trogon	United States (2608)	Mexico
Tropical Kingbird	Florida (1905)	Neotropics to S. Arizona & S. Texas
Gray "	Mississippi (1949)	N. South America, West Indies, Caribbean Middle America, Atlantic Coast to South Carolina
Fork-tailed Flycatcher	Maryland (2603) Wisconsin (2500) South Carolina (2490)	Neotropics to S. Mexico

Table 7. Continued.

Species	North American Locality*	"Normal" Range
Variegated Flycatcher	United States (2458)	South America
Aztec Thrush	" " (2605)	Mexico
Great-tailed Grackle	Illinois (2466) Colorado (2589)	N. South America to SW United States

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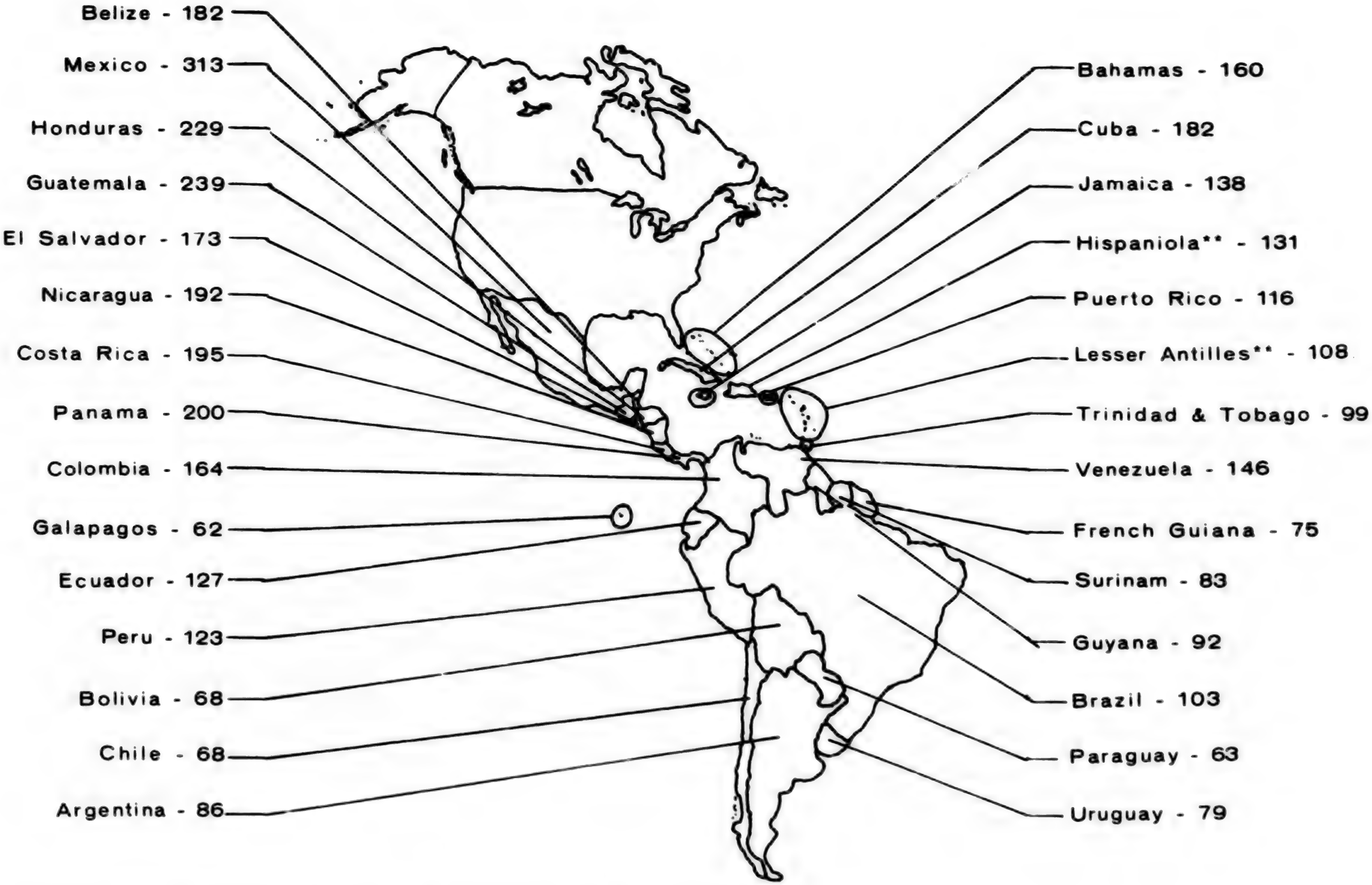
[*] Numbers in parentheses refer to citations in the Bibliography (Appendix 6).

migrants has focused on breeding ground distribution and on climatic events which might fragment or otherwise affect that distribution (2051, 2556, 2525, 2570, 1719). However, as pointed out by Lack (2535), Salomonsen (2731), and Rappole & Warner (2391) competition for food on the wintering ground is the most likely determinant of individual survival and therefore is vitally important in evolution of nearctic migrants, affecting not only their adaptations, but their wintering distributions and probably species formation as well.

Maps in Appendix 4 and Tables in Appendix 5 show current distribution and status information on nearctic migrants. These data are presented by political divisions in Figure 3. Figure 4 summarizes data on winter distribution by major geographical regions, indicating that the countries of Middle America, particularly Mexico, are where the greatest concentrations of transient and/or wintering migrants occur. These summaries are important in terms of where conservation efforts need to be directed but they tend to obscure zoogeographic relationships that exist between breeding and wintering area in many groups of migrants. These relationships are well illustrated by analysis of some of the distribution patterns in the wood warbler family Parulidae.

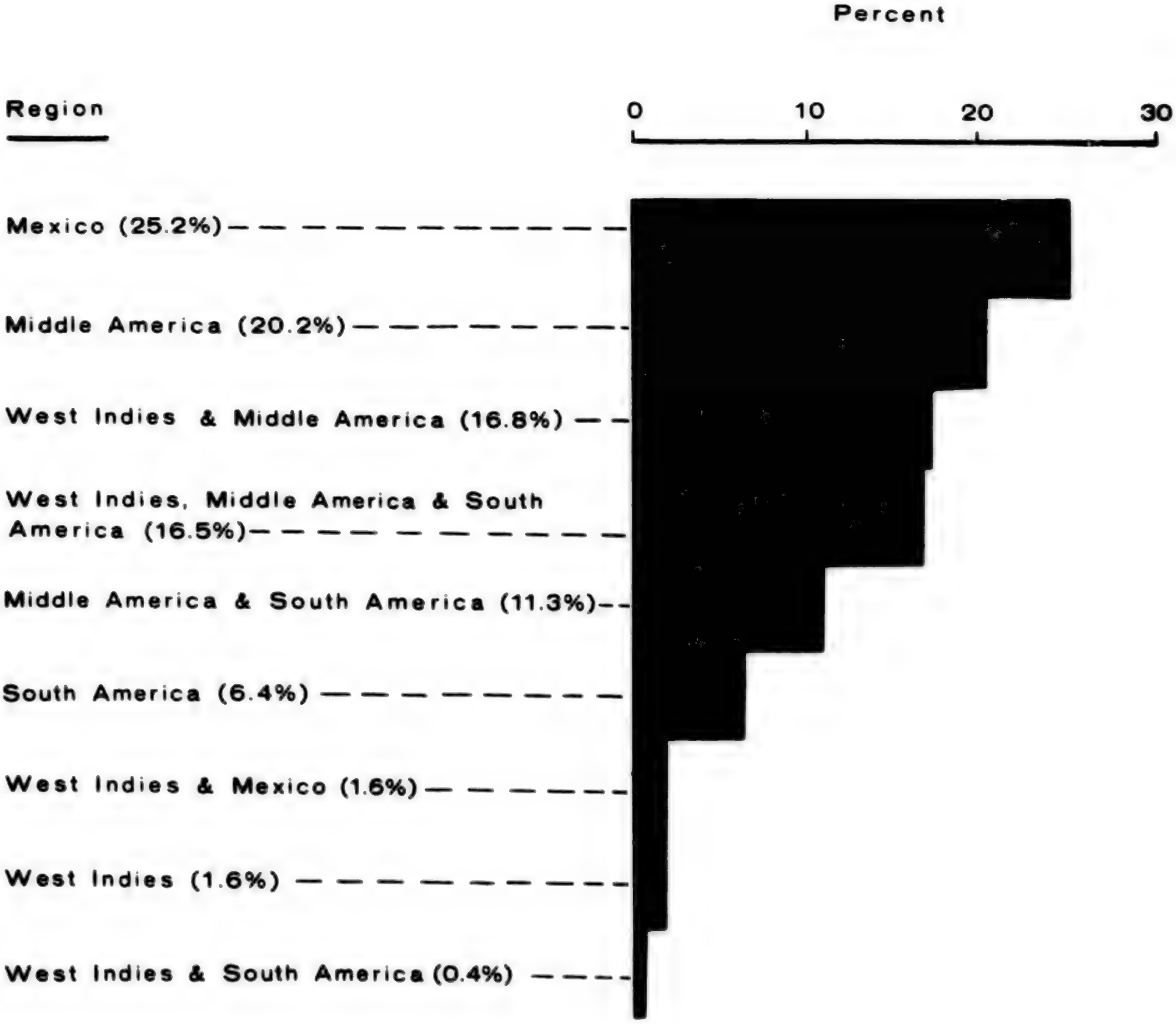
Mengel (2051) examined patterns of breeding distribution for several groups of warblers and found an apparent correlation between their present ranges and the probable glacial events of the Pleistocene. He did not consider winter ranges of these species relevant to the speciation process. However, maps showing both the breeding and wintering ranges for two of

Figure 3. Total Number of Migrant Species Recorded* in the Various Political Divisions of the Neotropics.



* Includes species recorded either as transients or winter residents.
** Includes more than one political unit.

Figure 4. Percent of Nearctic Migrant Species Wintering in the Major Regional Divisions of the Neotropics.



the groups considered by Mengel reveal some remarkable parallels between the breeding range location, wintering range location and the pattern of species distribution in the two groups (Figures 5 & 6) - a single species with a northeastern nearctic breeding distribution that winters in the Caribbean lowlands, and several species with breeding ranges arranged on a more or less north-south axis in the mountains of the western nearctic which winter in the mountains of northwestern Middle America.

Species assemblages of a number of other families show broadly similar distributional patterns: Trochilidae, the genera *Empidonax*, *Tyrannus*, and *Myiarchus* in Tyrannidae, the subgenus *Vireo* in Vireonidae (Appendix 4). These similarities for a number of unrelated groups are difficult to attribute to chance. They may indicate that a relationship exists between the breeding and wintering area which has some bearing on the speciation process. Perhaps for speciation to occur, populations of a migrant species must be isolated on both the breeding *and* wintering area; on the breeding area because genetic isolation is necessary; and on the wintering area because intense competition for resources between two populations during this period would ultimately lead to extinction or competitive exclusion of one of the populations. Any genetic change in a population is likely to affect the competitive ability of its members relative to those of another population. Theoretically, two populations of a species geographically isolated on the breeding ground could be forced by competition to remain genetically similar if they overlapped in a large portion of their winter range since a change in one of the populations might

Figure 5. Breeding and Wintering Ground Distribution of Members of the Nashville Warbler (Vermivora ruficapilla) Superspecies Complex.

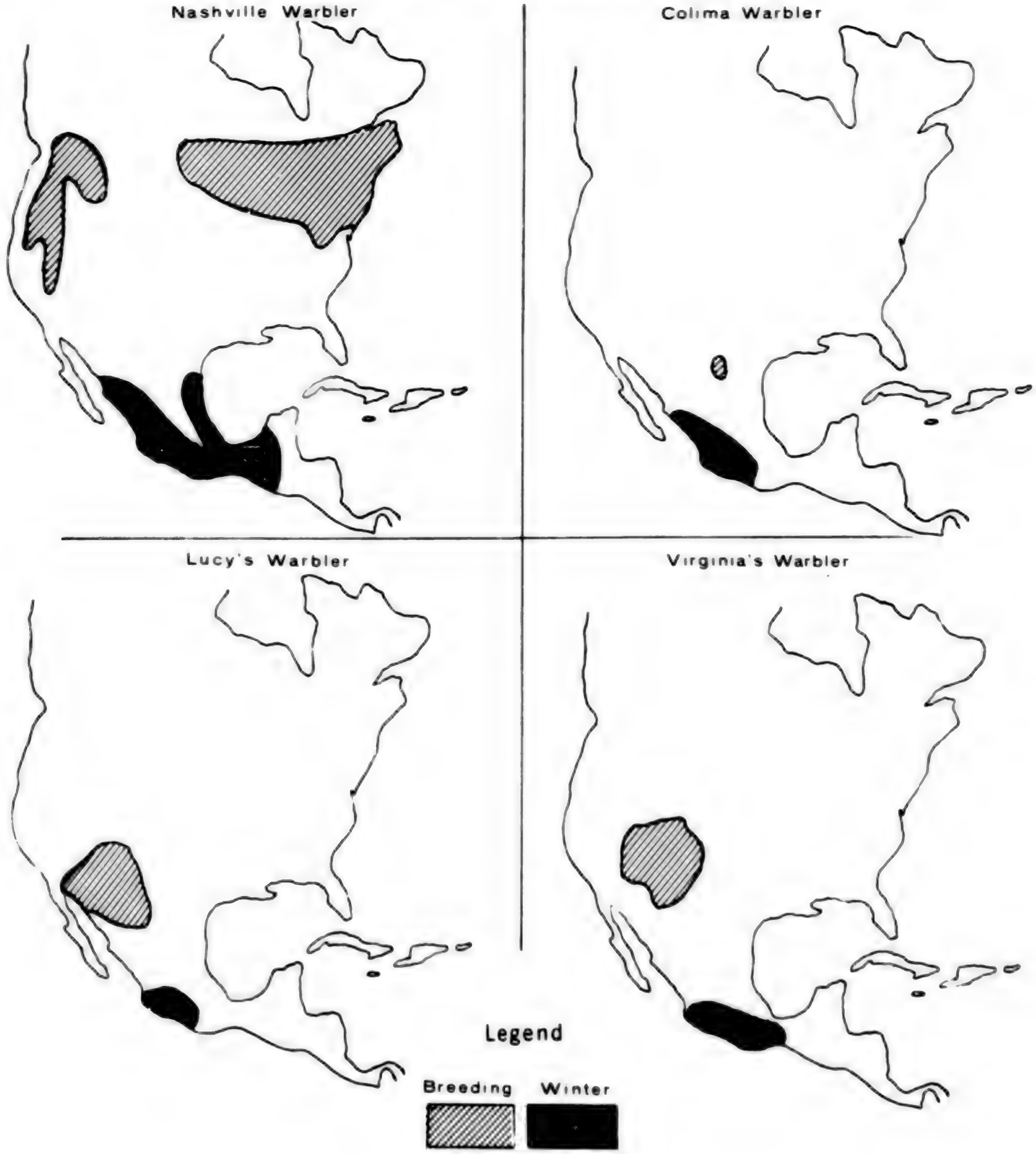
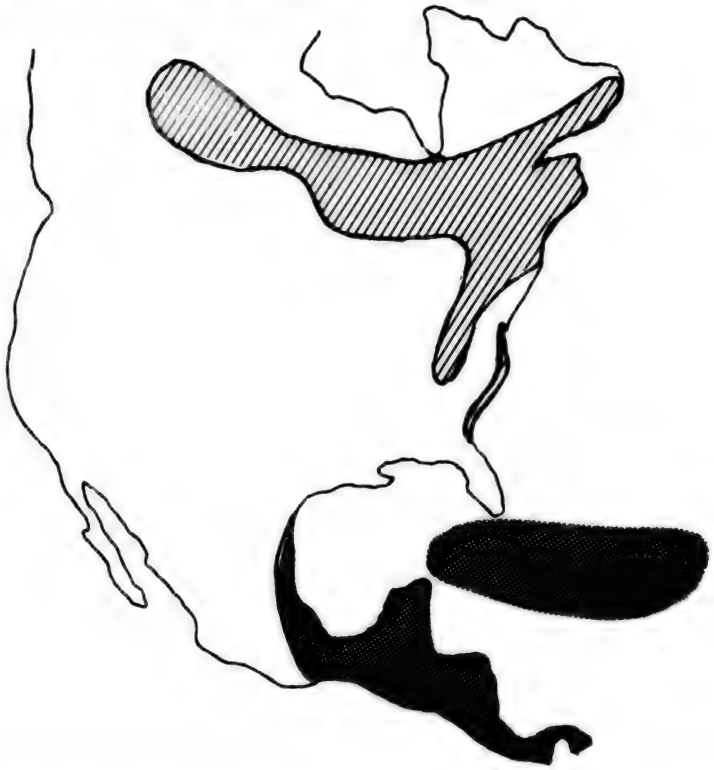


Figure 6. Breeding and Wintering Ground Distribution of Members of the Black-throated Green Warbler (Dendroica virens) Superspecies Complex.

Black-throated Green Warbler



Black-throated Gray Warbler

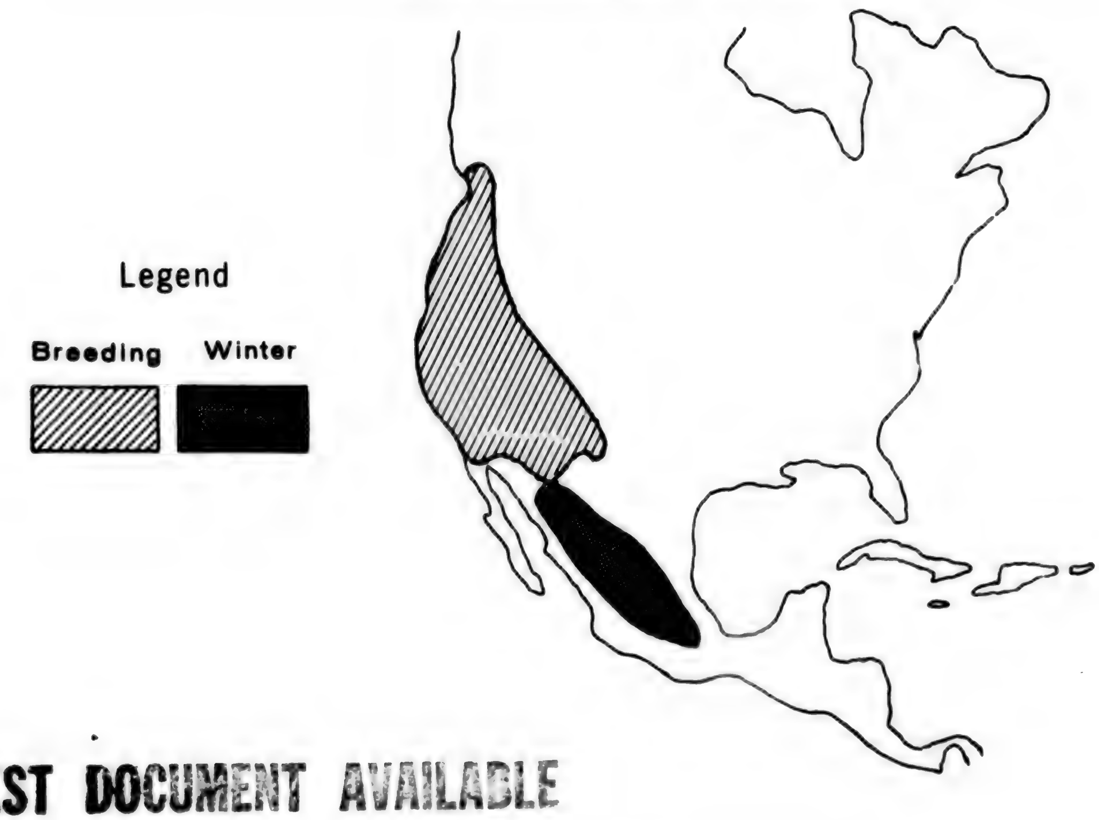
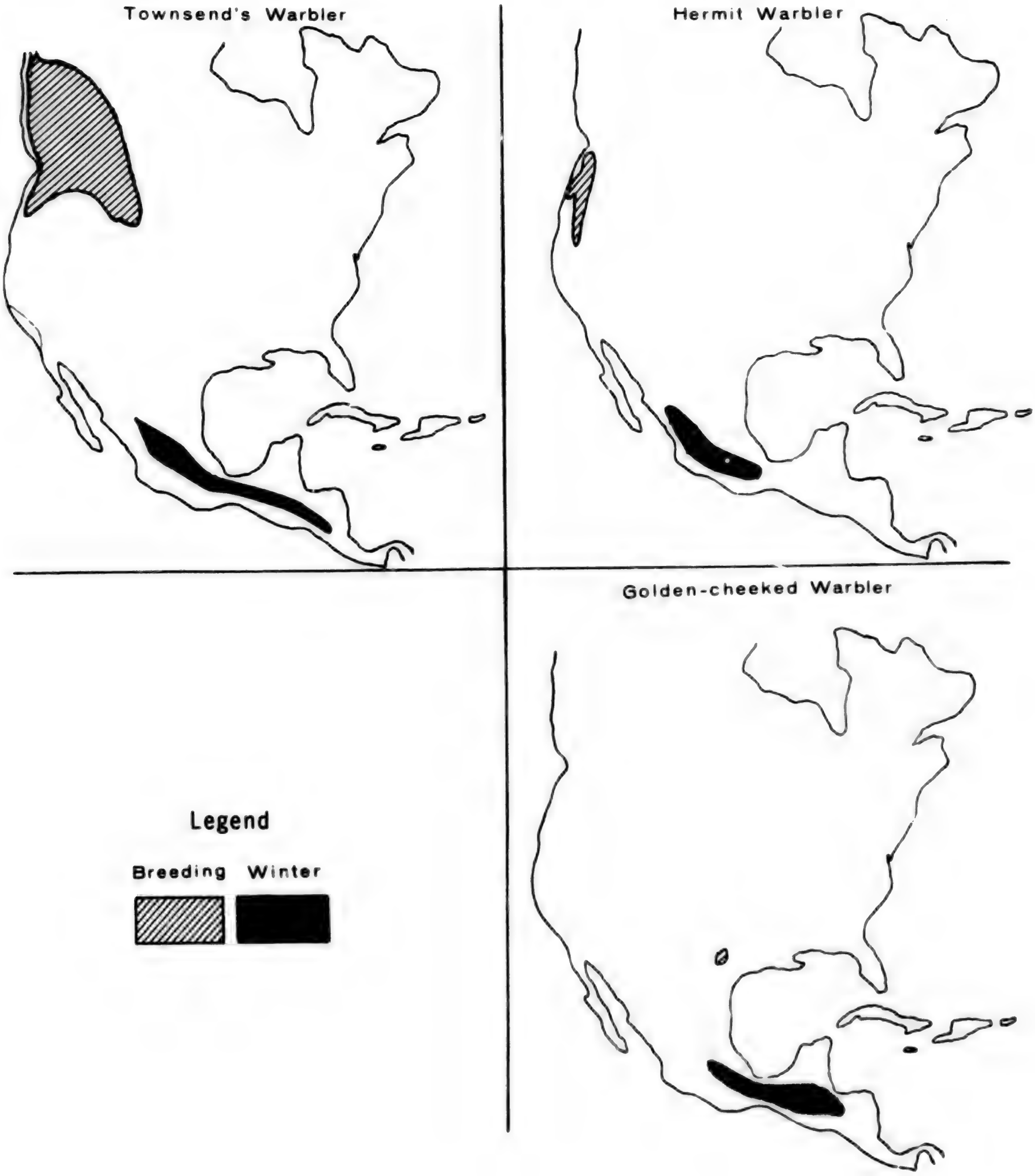


Figure 6. Breeding and Wintering Ground Distribution of Members of the Black-throated Green Warbler (*Dendroica virens*) Superspecies Complex.



affect the competitive balance that exists between members of the different populations. This explanation could account for lack of speciation in isolated populations in species like the Nashville Warbler whose eastern and western populations have supposedly been isolated on the breeding ground for 11,000 years (2051). The winter ranges of these populations overlap considerably (Figure 5).

Ample opportunity for simultaneous breeding and wintering ground isolation of populations occurred often in the western U.S., Middle America, and the West Indies during the Pleistocene when habitat islands or actual oceanic islands were common. As populations of a species, isolated from each other on their breeding ground became progressively different, members of one population may have excluded those of another from various parts of their winter range. Thus we hypothesize that wintering ground distribution and competition played and continues to play an important role in the evolution of migrant species.

The purpose of this analysis is to emphasize the point that not only did many migrants originate from tropical species but that their annual return there affects their evolution and speciation. Any analysis of migrants, zoogeographic or otherwise, must consider competitive interactions not only on the breeding ground, but during migration and on the wintering ground as well.

IV. IMPORTANCE OF NEOTROPICAL COMMUNITIES TO MIGRANTS

Avian breeding cycles have evolved to occur at times of resource abundance, and accordingly there is very little evidence to indicate that adults are food stressed during this period (2433). The period of greatest resource scarcity, intraspecific competition and density-related mortality appears to occur during the non-breeding season for most, if not all avian species (2535, 2673, 2267).

Winter territoriality is one behavioral mechanism evolved to secure critical resources that can be defended economically (2227). That similar kinds of resource-related competition occurs in flocking species as well has been documented by Fretwell (2266) and Ketterson & Nolan (2315). From these kinds of information we conclude that a reduction in tropical wintering habitat would cause a reduction in total population of a given migrant species. There is evidence of several kinds to indicate that this induction is correct.

Rappole & Morton (ms) revisited a study site in southern Veracruz rain forest that had been surveyed in Dec 1974. During that initial survey 90 individuals of 15 forest-related migrant species had been captured over 3,551 net hours on a 6 ha study area. In Dec. 1980, this study area was re-visited. It was no longer rain forest. Instead it was a jumble of disturbed forest, streamside vegetation, pasture, corn field and ecotones; the kinds of marginal habitats that have been hypothesized to be well-suited to migrants because of the lack of resident competitors (2431, 2847, 2306, 2362). During 3594 net hours, we captured 68 individuals of 12 forest-related migrant species, a reduction of nearly

40% in total population from our initial survey. Furthermore, for several of the migrant species captured in the area, there was little evidence of the long-term fidelity we had found previously for members of the same species in primary forest. In contrast, when we sampled in neighboring areas of still undisturbed forest, we found no change in either population levels or social systems of forest-related migrants from what we found during our 1973-1975 investigations. Conversion of rain forest to seral stages was the only major variable and the results of the conversion were devastating for both migrant and resident populations alike.

The dramatic decline of the Whitethroat (Sylvia communis) during the late 1960's and early 1970's is another indication of the importance of tropical habitats to migrants. This sylviid warbler, common throughout much of Europe, declined drastically over most of its breeding range. Populations were down as much as 77% in some areas. The apparent cause of the decline was a severe drought on the main wintering grounds of the species in sub Saharan Africa [see Morse (2362) for summary of papers on this topic].

The Whitethroat populations recovered when the sub-Saharan drought broke. Species whose winter habitats are destroyed by more permanent methods are likely to be less resilient. The Kirtland's Warbler may be an example of just such a species (3297).

The winter range of this species is, or was, restricted to the northern Bahama Islands (2109, 2112, 2110). By the time the nest of this species was discovered in 1903, the world breeding population was restricted to a few second growth jackpine (Pinus banksiana) stands in central Michigan. The demise of this bird has been attributed to the Brown-headed Cowbird, a species that supposedly was absent from jackpine until the advent of European settlers (2109). However, the warbler was already rare when this land was first settled in the early 1800's despite the fact that jackpine was, and is, an abundant habitat across the northern tier of the U.S. and southern Canada all the way to the Great Plains. Furthermore, the pine barrens of central Michigan and other northern tier states and southern Canada have probably provided cowbird habitat since the retreat of the glaciers, in other words for as long as they have provided suitable habitat for the Kirtland's Warbler.

Even if we assume that the cowbird was not present in the jackpine barrens until the arrival of farmers, then we must also assume that up until the arrival of farmers, there were populations of Kirtland's Warblers in jackpine throughout the north central region of the continent. Invasion of the cowbird must then have resulted in near zero reproductive success for such a presumbly extensive population to be reduced to less than 200 pairs in less than a century. The facts, however, show that cowbirds reduce Kirtland's breeding success by little more than what is found in other warbler species. In fact, the cowbird cannot account for the annual fluctuations seen now in the closely monitored population (3247).

An alternative explanation is based on the fact that the Kirtland's Warbler winter range is, so far as is known, restricted to the Bahamas. The Bahamas were discovered in 1492 by Columbus and have been inhabited by Europeans since the early 1500's. During this nearly 500 years of occupation, the vegetation has been drastically altered time and again by plantation-type farming methods; cheap labor turning marginal land to profit until the soil is exhausted and then abandoned. This pattern of land use was practiced throughout the West Indies from the time of European settlement until the end of slavery in the mid-1800's. It was this total habitat destruction on its wintering ground, hundreds of years before farmers and loggers cleared the upper midwest that caused the extinction of many endemic species of the West Indies known to have been present during pre-Columbian times, and possibly affected the Kirtland's Warbler as well (2906, 2920, 2928, 2933).

A similar scenario can be drawn for the Bachman's Warbler (3297). This bird has a breeding range that covered the entire southeastern U.S. (2065, 2066). Yet it was extremely rare at the time of its discovery and has been so ever since. Some have blamed its demise on breeding ground habitat destruction. This is unlikely. The bird lived in overgrown beaver swamps, rice fields, and other types of swamp habitats that have been and continue to be abundant in the southeast. Others have blamed its disappearance on collectors. This explanation is also unlikely. There are fewer than 500 specimens of the bird known. Clearly no viable population of small warblers could consist of less than 500 birds scattered across the southeastern U.S.

We suggest that Bachman's Warbler like Kirtland's Warbler had the misfortune to have its winter range restricted to an island, in this case Cuba. Cuba has been in cultivation since the early 1500's. Probably all of the interior mountain forests were never cleared which is why we still have Black-throated Blue Warblers and Cape May Warblers, but suitable habitats for sugar cane in the lowlands was certainly used over and over many times in the past five centuries since colonization. It is quite possible that these lowland habitats harbored the Bachman's Warbler and that their clearing caused the species' disappearance before much of the breeding grounds had even been explored.

The same fate very nearly overtook the Swainson's Warbler. When this bird was discovered by Bachman in 1849, it was extremely rare. In fact it was not seen again for 50 years. Only within the past few decades has this bird become common in the swampy lowlands and rhododendron thickets of the southeast. Was the bird there all the time, overlooked by Audubon, LeConte, Wilson, even by Bachman, its discoverer? This explanation seems unlikely. The bird is no more unobtrusive than the Louisiana Waterthrush, and it has a loud clear distinctive song, which is what alerted Bachman to its presence in the first place (46).

The Swainson's Warbler winters for the most part in the lowlands of the Greater Antilles. We propose that its near demise is due to this association. Only the fact that some portions of the population winter in lowland Mexico and Belize saved the bird from the same fate as Bachman's Warbler, Kirtland's Warbler, and perhaps other species of migrants whose existence we are not even aware of because they were extinct before ornithologists were around to record them. As all but the richest cane plantation regions have long since gone back to various types of primary and secondary vegetation, the bird has made a recovery. Bachman's and

Kirtland's Warbler populations had apparently dropped below a certain critical level so that despite the fact that their winter habitats have recovered somewhat, they have been unable to.

According to the Endangered Species Act of 1973 (3242), an "Endangered Species" is "...any species which is in danger of extinction throughout all or a significant portion of its range...." According to this definition, and based on our knowledge of migrant ecology, most of the forest-related migrants of North America that migrate to winter quarters in the tropics are "Endangered." As will be pointed out in detail in Section VI, forest destruction rates are 1%-2% annually or greater in most neotropical countries. Mathematical expertise is not required to realize that at this rate it is likely that most of the forests, and along with them many of the forest-related migrants will have disappeared from "...all or a significant portion of their ranges..." within a generation or so.

It is difficult to visualize changes of such magnitude in our environment and therefore difficult to worry about them until they have actually taken place. However, experiments in regional depauperization have been tried before, with convincing results (Middle East, North Africa, El Salvador, Sicily) (3255).

When we think of the effects humans have on other species, we tend to think of animals like the Passenger Pigeon or Carolina Parakeet. These birds disappeared shortly after we became aware of their existence. Therefore, we often think of them as "peculiar;" some fatal flaw in their biology made them particularly vulnerable to human disturbance. Actually, the most probable aspect of their biology that made these species vulnerable is that their ranges were restricted to eastern North America. We know from descriptions in Coues (51), Catesby (49), Wilson (63), Bartram (45) and Audubon (41) that more than 50 species of birds declined drastically or disappeared from eastern North America (Table 8) during the 1800's. Like the Timber Wolf, Elk, Mountain Lion and Buffalo that formerly roamed the forests of Virginia and the Carolinas (49), many of these species are still absent from this region. Had their ranges been restricted to eastern North America, it is likely that they also would be extinct. However, many of these species had then, as they have now, breeding populations in the tropics and subtropics or broader neartic ranges that included central or western North America; areas where exploitation has been somewhat slowed by topography, distance, climate, and conservation legislation.

Thus in talking about nearctic migrants, it is important to begin by understanding that this avifauna is already depauperate in many parts of its former range and that the declines occurred through processes very similar to those occurring in the neotropics at present. But there is a critical difference. As pointed out in the Section on Zoogeography, 78% of all nearctic migrants have congeners or conspecifics that breed in the neotropics; very few have significant wintering populations in the nearctic. Once tropical habitats for these species are gone, the species will also be gone regardless of how much breeding habitat remains in the Nearctic Zone.

Table 8. Former and Present Distribution of Selected Species of Birds in Eastern North America Whose Ranges Have Changed since the Time of European Colonization.

Species	Former Range	Present Range[1,2]
Brown Pelican	Abundant resident, TX to NC. (41)	Common in FL; reduced to scattered colonies in NC, SC & Gulf Coast states. (3292, 3293, 3279, 3288)
Cattle Egret	None known prior to 1952. (58)	Common in S. Atlantic & Gulf Coast states; widely scattered elsewhere in E. U.S. (58)
Snowy Egret	Locally common, especially coastal states north to NY. (3300)	Rapidly declining in S. FL, but increasing north along Atlantic Coast to ME. (58, 3300)
Wood Stork	Locally common S. Atlantic and Gulf Coast states. (51, 58, 3300)	In S. FL, population declined 93 percent from 1930's to 1974 due to habitat loss. (3288, 3300)
White Ibis	S. Atlantic and Gulf Coasts; common resident in S. FL. (3300)	In S. FL, population declined 90 percent since early 1900's due to habitat loss. (3300)
Swallow-tailed Kite	Abundant in SE states; common in midwest states. (3301)	Common only in S. FL; remnant population in SE coast states due to habitat loss. (3301)
Peregrine Falcon	350 pairs in E. U.S., mainly MN, WI & Appalachian states. (3302)	Extirpated by mid-1960's due to pesticides, since 1980 released birds breeding in wild. (3302)
Limpkin	Common permanent resident in GA and FL. (45)	Locally common in FL; local and rare in GA. (3278, 3280)
Long-billed Curlew	Temperate N. America. (51)	Rare and local E. of Mississippi River. (3282, 3295, 3296)
Eskimo Curlew	Abundant transient in eastern N. America. (45, 51)	Nearly extinct due to over-hunting. (58)
Roseate Tern	Locally abundant along Atlantic Coast. (51)	A few major colonies exist along Atlantic Coast from NY to ME. (58, 3282, 3283, 3295, 3296, 3303)

Table 8. Continued

Species	Former Range	Present Range[1,2]
Passenger Pigeon	Abundant in oak forests in eastern U.S. (41)	Extinct in 1914 due to over-hunting and possible other factors as disease. (37, 3298)
Ivory-billed Woodpecker	S. Atlantic & Gulf Coast states. (51)	Probably extinct due to loss of forest habitat. (3288, 3298)
Eastern Bluebird	Common in suitable habitats. (46)	Uncommon and local due to loss of nesting sites and competition from introduced species. (37)
European Starling	None known prior to 1890. (37)	Introduced. Common to abundant. (37, 62)
Northern Cardinal	Absent or uncommon in portions of Canadian border states of U.S. (38)	Present and more common in Canadian border states of U.S. due to artifical feeding. (58)

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[1] Numbers in parentheses refer to citations in the Bibliography (Appendix 6).

[2] Includes personal communications: R.M. Erwin, M.R. Fuller, M.A. Howe and C.S. Robbins (U.S. Fish and Wildlife Service, Laurel, MD).

There is some question concerning the effects of habitat destruction on various migrant species. Draining of wetlands, cutting of forests, and plowing of prairies may, after all, benefit some species. For instance, during the first stages of clearing, edge and second growth habitats should be enhanced, causing concomitant increases in shrub, savannah, open country, and grassland species like Scissor-tailed Flycatchers, Prairie Warblers, Yellow-rumped Warblers,and Indigo Buntings. However, the purpose of clearing is not to make second growth or edge. These habitats are simply the by-product of human inability to use all the land all the time. As human pressures become greater and clearing and farming methods become more efficient, less and less land will be left in "in-between" stages. The old "slash and burn" method of rotation of lands from forest to cropland that has been used in tropical countries for thousands of years has been abandoned in the push to feed more people.

Lagoons are being replaced by deepwater ports; forests are being replaced by monocultures. In each case the result is a drastic reduction in structural, floral,and faunal diversity that will cause comparable reductions in migrant diversity. Some species will be enhanced. These few species will increase drastically and become pest species like the Starling, Common Grackle, and House Sparrow. The most likely candidates for enhancement in the wake of current water and land use practices in the neotropics are the Cattle Egret, Brown-headed Cowbird, Ring-billed Gull, Indigo Bunting, and Common Yellowthroat.

V. POPULATION CHANGES IN NEARCTIC MIGRANTS

Decreases in breeding nearctic migrant populations in North America have been noted by Carson (2817), Vogt (2880), Aldrich & Robbins (2939), and others (see Appendix 6 under "Population Changes" and "Addendum"). These declines have been variously attributed to use of pesticides, destruction of breeding habitat, destruction of wintering habitat, changes in agricultural practices and a number of other factors. Evidence for the decline has been based on anecdotes or data gathered from local surveys.

Data from Breeding Bird Surveys conducted in the U.S. and Canada show marked declines for some species (Prairie Warbler, Loggerhead Shrike, Sora Rail); but many species have shown increases despite the fact that local surveys show opposite trends (3266). C.S. Robbins,who has directed the Breeding Bird Survey since its inception in 1966, explains these discrepancies as follows:

> "Actually, many different factors are acting on our long-distance migrants and it is not always possible to determine the relative importance of these factors. For example, we believe that the recent increase in many of our warblers in the eastern United States is a result of recovery from extensive use of persistent pesticides during the 1950's and early 1960's. Data from a much longer period are needed to determine relative effects of loss of breeding habitat, loss of winter habitat, and change in pesticide and other pollution levels." (3264:33).

Country-wide surveys suffer from some procedural biases that reduce their usefulness in reflecting population reductions in nearctic migrants. Variation in observer efficiency, natural cycles of population fluctuation, correlated with multi-year environmental cycles, sampling methods, methods of data treatment or misunderstanding of breeding ground population dynamics could all affect the reliability of the surveys concerning relative numbers of birds in a population over time.

Is there any way to determine whetheror not there is a decline and, if a decline is observed, what factors caused it? If a decline exists within a given population, it would probably be on the order of some part of a percentage point per year. Spread over the entire population of a species, there would be increases recorded in some areas, decreases in others. Unless measured using standardized methods in circumscribed areas over several years, any decline would be very difficult to detect.

Usually populations are estimated based on numbers of singing birds counted along a set route. This method assumes that a singing male represents a pair. Research has shown that this is not always the case. Some males of supposedly monogamous species may have more than one mate (2133, 2135, 2392, 2167, 2138), there is generally a number of unpaired birds (floaters) in the populations (2392) and some males sing when they are unmated (2119). Thus the possibility exists that decline would have little detectible effect on the number of singing males, at least initially. The initial effects would be that more first-year males would enter the breeding population and fewer males would be polygynous (2392). Thus broad surveys may be slow to assess major population trends.

Documentation of population trends in local surveys also suffer from problems. An example of this kind of study is the report by Temple & Temple (2956). Thirty-five species were treated for which abundance data for the past 40 years were available. About half of the birds treated were nearctic migrants. Decreases were found in some nearctic migrants, e.g. bitterns, marsh wrens, and Peregrine Falcons; but these decreases were attributed to specific local conditions - marsh drainage, and pesticides in the cases cited. Only one nearctic migrant, the Yellow-throated Vireo, showed a definite decrease that could not be easily explained. The authors in this case suggested that the disappearance of the American Elm (Ulmus americanus) was responsible.

It is the nature of this type of study that local decreases will always be attributed to changes in local conditions. This applies to North America as a whole as well as to single, small study tracts. This is due to at least three reasons. First, radical changes in local conditions do cause the majority of easily detectible changes in breeding avifauna. Walcott (2958) and Aldrich & Coffin (2938) recorded drastic declines in nearctic migrants apparently associated with urbanization. Lum (2946) recorded declines in shorebird populations related to "renovation" of a site. Pesticides, forest fragmentation, strip mining, dumping of atomic wastes and pollutants are highly visible and do cause obvious problems for the avifauna.

Second, the relationship that a migrant bears to its stopover and wintering areas has not been recognized. These areas have not been seen as the fragile links in the species' life cycle that they are, but rather as convenient resting spots.

Third, wintering ground habitat destruction is not local in its effect on a breeding bird population. Wiping out the Wood Thrushes in southern Veracruz does not wipe out the Wood Thrushes in central Minnesota. The effects are diluted over a large portion of the species' range (2569).

Still, there have been several, long-term local studies which have revealed significant declines in migrants that are not easily attributed to local conditions. Lynch & Whitcomb (2948) summarized abundance data from 8 forested sites in which breeding bird censuses had been performed over a period of from 5 to 30 years. These sites varied in degree of human disturbance and size, but as stated by Lynch & Whitcomb (2948), "All eight comparisons reveal a decline in both absolute and relative abundance of long-distance migrant species." This decline was not matched by populations of permanent residents or short distance migrants, some of which actually showed increases over the same period and in the same plots in which long distance migrants showed sharp declines or extinctions. Whitcomb et al.(2962) and Aldrich & Coffin (2938) in similar comparative studies also found declines in forest-related migrants while resident populations remained stable.

As noted above, the tendency is to ascribe these declines to local conditions. In the above cases, the predominantly held explanation is that declines were caused by forest fragmentation (2962, 2963). Lynch & Whitcomb (2948) for instance state that, "Birds breeding in small isolated forest tracts in the eastern United States have experienced a general decline in abundance and species richness over the past few decades. This avifaunal deterioration appears to be an inevitable sequel to the insularization of forest habitat."

The "insularization" hypothesis does not explain the marked discrepancy in decline noticed between the long-distance migrants versus the Temperate Zone residents. Furthermore, long term studies at forest plots that have not been fragmented yield the same distressing declines in nearctic migrants while resident populations remain stable. The unique study reported by Briggs & Criswell (2941) is particularly interesting in this regard. They report on a study of 3 wooded tracts near Washington, D.C. that have been systematically censused over a period of 30 years. During that period, the woodlots have remained unchanged. They state that, "Over the period 1947-1977, and especially since 1963, we found one striking similarity among these areas. Numbers and species of birds that breed in the region but winter in the south diminished sharply, and several species disappeared altogether. At the same time, the birds that are permanent residents have remained steady or increased in numbers." (2941). They cite migration and wintering ground deterioration as the probable cause of the declines.

The evidence of the importance of the wintering ground to migrant survival, taken together, is overwhelming. There are historical examples in the Kirtland's Warbler, Bachman's Warbler, and Swainson's Warbler; current examples in the Whitethroat; documented wintering ground declines as a direct result of habitat destruction; documented behavioral data to indicate the intense competition for resources that takes place in tropical and stopover communities; and, most critical of all, documented declines in some nearctic migrants on the breeding ground.

VI. OUTLOOK FOR MIGRANT BIRDS IN THE NEOTROPICS

The major purpose for undertaking the analysis of information on nearctic migrants in the neotropics was to establish what problems these birds are faced with when they leave their nearctic breeding areas. We wished to know to what degree migrants are dependent on tropical stop-over and wintering areas and something about the nature of that dependence. We also wanted to find out which regions and habitats in the neotropics are most critical in terms of numbers of species potentially affected by environmental deterioration.

We have given evidence in the preceding chapters of the critical relationship that exists between tropical environments and nearctic migrants. Data on populations of some nearctic migrants indicate that they are limited by wintering ground competition. It seems probable that most nearctic migrant species are similarly limited. Therefore, what happens to their winter habitat is of direct importance to their survival. In this chapter, we will present information on the present status of neotropical environments as they relate to migrants. We will also discuss the problems confronting conservationists who support preservation of these habitats for whatever purpose.

Neotropical Habitats

1. Shrub-Steppe - Many areas that fall into this category are subject to extremes of temperature and precipitation that make them unsuitable for development. Desert, alpine regions, tundra, etc.,remain more or less untouched except where affected by large scale environmental disturbance e.g., acid

rain. However, some of the potentially richest agricultural and pasture lands fall into this category as well, and most of these areas have already been cleared and developed. Once the land is put into cultivation it is subject to problems similar to those encountered in forested lands: erosion, loss of soil fertility, soil compaction. Furthermore, application of pesticides, herbicides and fertilizers to the soils causes buildup of toxic materials in runoff water and eventual poisoning of even ground water used for drinking (3160, 3164, 3168, 3174, 3198).

Conversion of prairies, savannahs and scrubland to various kinds of monoculture naturally destroys the floral and faunal diversity of the region.

Very little work has been done on the wintering ground natural history of shrub-steppe migrants. These are among the species most often considered as benefitting from forest alteration since their habitats would supposedly be increased. Ironically, Breeding Bird Surveys show decreases for many of these birds - Scissor-tailed Flycatcher, Bell's Vireo, Prairie Warbler, Yellow-breasted Chat, Loggerhead Shrike, Grasshopper Sparrow, and Dickcissel (3266).

As mentioned in the "Population Changes" section, these declines may be spurious. They may be the result of sampling errors or even due to changes of farming practices in the temperate U.S. (3267). There is a chance however that these changes reflect a trend toward monoculture in tropical prime agricultural areas, areas that used to be grasslands, savannahs and shrublands.

The destruction of forest is visually dramatic, much more so than the destruction of prairies. Yet formerly forested regions are generally much less productive than prairies when converted to croplands (3268). The shrub-steppe habitats are complex, diverse and highly desirable in many instances for cultivation because rainfall and soil conditions are better suited for supporting a monoculture. As a result there may be far less remaining undisturbed shrub-steppe habitat, particularly in lowlands, than forest habitat on a percentage basis. Declines of shrub-steppe migrants may be related to this problem. The relationship between nearctic migrants and shrub-steppe habitats needs to be investigated and the amount of remaining natural shrub-steppe habitat of various kinds needs to be assessed.

2. Forest - A number of investigators and government agencies have examined the devastation of tropical forests on a world scale (3101, 3102, 3100, 3015, 3046, 3147, 3137, 3118, 3103, 3042) (see Bibliography, Appendix 6 for further references on this topic). They have arrived at the startling conclusion that tropical forests are disappearing at the rate of 1%-2% per year. Many of these data are summarized by Myers (3100). Table 9 is a summary of information on the status of forest resources for countries in the neotropics based on estimates in Myers (3100). Note that forests in the West Indies and Middle America, the most important wintering areas and migration stopover points for forest-related migrants, are projected to be reduced to isolated fragments within a decade. The moist forests are those most threatened by this process but all forest types will be decimated before the end of the century under present policies in the

Table 9. The Status of Forests in the Neotropics*.

Country	Total Land Area (Sq. km)	Percent Presently Forested (Approximate)	Forest Prospects at Present Rates of Destruction
Mexico	1,193,133	33	Isolated remnants by 1990
Guatemala	108,889	49	" " " "
Belize	22,965	87	" " " "
El Salvador	21,393	12	Already reduced to isolated remnants
Honduras	112,044	63	Isolated remnants by 1990
Nicaragua	147,943	43	" " " "
Costa Rica	49,132	45	" " " "
Panama	75,474	54	" " " "
Cuba	114,524	14	Already reduced to isolated fragments
Puerto Rico	8,896	17	" " " " "
Hispaniola	76,482	14	" " " " "
Lesser Antilles	4,838	?	" " " " "
Trinidad & Tobago	5,126	46	Prospects for the future not known
Venezuela	908,541	39	" " " " " "

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Table 9. Continued.

Country	Total Land Area (Sq. km)	Percent Presently Forested (Approximate)	Forest Prospects at Present Rates of Destruction
Colombia	1,138,000	32	Lowland rainforest bordering Amazonia & Pacific Coast rainforest will be reduced to isolated fragments by 1990
Ecuador	299,976	60	Pacific Coast forests will be reduced to isolated fragments by 1990. Large tracts of forest in Amazonia will be cleared by 2000
Guyana	215,000	87	Little changed by 2000
Surinam	162,000	89	" " " "
French Guiana	97,369	89	" " " "
Amazonian Brazil	3,570,000	80	Eastern and southern sectors largely destroyed by 1990. Western sectors probably little changed by 2000
Bolivia	1,074,428	28	Prospects for the future not known

*Based on data from Myers (3100).

regions. This process seems inconceivable until one is familiar with specific areas or regions where the deforestation has been observed in action.

Destruction of tropical forest has a number of wide ranging effects on the environment that are already well documented: erosion (3016, 3021, 3031, 3036, 3066, 3070, 3076, 3082, 3084, 3095, 3140, 3155, 3157, 3254), loss of soil fertility (3031, 3124), reservoir siltification (3060, 3061), possible disruption of the earth's carbon and hydrologic cycles (3254). The economic and social returns are questionable when weighted against these costs (2984, 3010, 3042, 3045). Myers (3100) summarizes a number of instances in which governments have found that forest development projects, unless carefully controlled, can result in rapid loss of the forest resources and desertification of the cleared land within a period of years with little economic benefit to the nation. Despite these facts, corporate economic interests and rapid population growth continue to push governments into forest destruction programs.

3. Aquatic - Tropical ponds, marshes, rivers, lakes, estuaries, and coastal marine environments support 105 species of nearctic migrants. As is the case for forest and shrub-steppe, these rich habitats are threatened by pressures due to increased human populations. These habitats are particularly vulnerable because wastes, pesticides and other poisons resulting from abuse of surrounding habitats are carried by runoff into aquatic habitats where they concentrate causing irreparable ecological damage to dependent flora and fauna.

Aquatic habitats and the organisms which live in them are part of a chain of cyclic breakdown, decay and return of raw materials to the atmosphere that has gone on virtually unchanged for millions of years. These cycles are now being disrupted because of changes in the kinds and amounts of materials that are being washed from the land into aquatic environments: excessive amounts of soil, smothering and silting normal aquatic flora and fauna, toxic chemicals from agricultural lands, industrial dumps and organic nutrients from urban centers (3160, 3162, 3164, 3171, 3172, 3175, 3179, 3181, 3190, 3192, 3194, 3195, 3196, 3209, 3210, 3211, 3215). These habitats are further degraded by oil spills, deep water port development, drainage, and other forms of gross environmental alterations (3213, 2991, 3014, 3120).

Little work has been done to date on the effects of aquatic habitat degradation on nearctic migrants, but what has been done is not encouraging. As noted in the following section on Pollution, most of the birds that have been found suffering from pollutants are those associated with aquatic ecosystems where poisons become concentrated as they pass through the food chain until they reach toxic levels in predators like the terns, herons, and falcons (2879, 1359, 3216, 3183, 3185).

Pollution

Bibliographic material on this topic is provided in Appendix 6 under the heading "Pollution in the Tropical Environment." These citations indicate two things: first that there are serious problems with contaminants in the neotropics, and second that many people who live there are aware of these problems. The well-documented experiences of the United States and other developed nations serve as stark examples of the hidden costs of pollutants to human health, livestock, crops and, incidentally, to wildlife.

Despite the fact that governments and citizens of many neotropical countries are aware of some of the costs of pollutants, they are forced to continue to subject the effects of these poisons to a cost/benefit analysis; after all, in many tropical regions people still suffer and die from Arthropod borne diseases that can be controlled by pesticides, and a bushel of corn saved from insect pests can mean the difference between starvation and survival for some families.

Given these kinds of difficult considerations, it is not surprising that use of persistent pesticides and production of industrial and human waste pollutants remain very high in developing nations of the neotropics.

The extent of pollutant effects on wildlife in general and migratory birds in particular is virtually unknown. Very few studies have been done but those that have been done are not encouraging. A study of rice fields treated with the highly toxic and persistent pesticides endrin and NaPCP in Surinam revealed that individuals of 33 species of birds in the vicinity were suffering from pesticide poisoning. Twenty of these species, mostly Ciconiiforms and Falconiforms, have nearctic migrant populations (2879).

A study by Albuquerque (1659) of Peregrine Falcons in Brazil shows that North American races of these birds are exposed to high pesticide levels during the period of time spent in south coastal Brazil. However, no actual measurements of pesticide levels in the birds were given.

Studies in Chile (3216) and the Humboldt Current off Peru (3185) further indicate that migratory waterbirds are likely to be exposed to high pesticide levels, at least in some areas of the neotropics.

The studies of kestrel pesticide levels in New York by Lincer & Sherburne (3271) illustrate the danger to nearctic migrants of pesticides accumulated during migration or on the wintering ground. They found that kestrels laid eggs with thinned shells and high pesticide residues despite the fact that local prey has very low pesticide levels. They concluded that the pesticides were accumulated in body fat by the birds from prey captured on southern wintering grounds where potential prey items show high pesticide levels.

The studies of residue in migratory birds and their eggs by Henny et al. (3274) indicate that pesticide contamination of migrants on their wintering grounds is a serious problem, particularly for predators high in the food chain. In a study of six sites in the northwestern U. S. (3 in Oregon, 2 in Washington, 1 in Nevada), they found that all eggs analyzed of Black-crowned Night Herons breeding at the site were contaminated with DDE and that contamination had a negative effect on breeding success.

Examination for local contamination at colony sites yielded no indication of DDT/DDE in non-migratory predators (Largemouth Bass) for four of the six sites including the site (Ruby Lake, Nevada) where bird contamination was found to be highest. They concluded that the birds must be accumulating DDT/DDE residue during migration or on their wintering grounds in Middle America, where use of DDT and similar compounds in control of insect pests is still common.

In a different study Henny et al. (3275) analyzed blood of migrating Peregrine Falcons during fall and spring migration. They found that pesticide levels in the blood of first year birds were extremely low during the first migration southward to wintering areas in Central and South America. In contrast, second-year birds captured during northward migration in spring had significantly higher levels of pesticide contaminants in their blood.

Determination of the magnitude of the pollutant problem for migrants should be a high research priority, not only because of its relevance for survival of migrant populations but because birds act as bioindicators of the seriousness of environmental pollution of an area in general.

Some research is currently being funded for projects related to this migrant contamination problem by the U.S. Fish & Wildlife Service, the Canadian Fish & Wildlife Service, and the World Wildlife Fund. More work along these lines is certainly needed.

Direct Exploitation

Economic and cultural factors dictate the seriousness of direct forms of migratory bird exploitation. Where a tradition for hunting or a market for the products exists there is a grave danger that the resource will be quickly exahusted. This problem occurred during the late 1800's and early 1900's in the eastern United States when plume hunting caused the extermination of many migratory game bird populations (53, 48). Fortunately, neither the market nor the traditions of the countries of the neotropical region have placed significant hunting pressures on migrants to date. As Saunders (2868) reports for Mexico "...because of the much lower wage and very small average income, sport shooting can be afforded by few. For those natives who hunt game to supply needed food, ammunition is too expensive to be used on ducks where there are deer, wild pigs, and turkeys to be killed with the same ammunition."

Exploitation of migratory birds is not presently a serious problem in the neotropics. Birds are removed from wild populations for food, sport, medical research, falconry, pets, zoos, and museum collections, yet in most cases, this has had little effect on populations. Direct exploitation of migratory birds and other segments of the flora and fauna is controlled by a number of local game laws and international agreements (see Appendix 6, "Laws and Conventions" Section). Illicit trade for some species like the Peregrine Falcon is an international conservation problem but most migrants do not fall into this category.

Human Population Growth

Of all the possible negative influences on populations of nearactic migrants in the neotropics, the most serious is that of human population growth. This single factor is the ultimate cause underlying the complex myriad of proximate factors that threaten avian migrants. Forest destruction, pesticides, wetland drainage, hunting pressure, industrial wastes - all of these problems are by-products of the overwhelming population growth that has occurred and is presently occurring in the neotropics. People must have food, clothing, places to live and a decent standard of living. With current population densities and rates of natural increase (Table 10), the costs to the environment for these simple needs will be devastating.

Migrant Vulnerability to Environmental Changes in the Neotropics

When rates of population growth, habitat destruction and pollution are considered in light of where the highest concentrations of wintering and transient migrants occur, it is clear that the West Indies, Central America, and Mexico are the most critical regions for migrant conservation

Table 10. Population Data for Countries of the Western Hemisphere Having Populations Greater than 150,000 or Belonging to United Nations.*

Country	Population Estimate Mid-1981 (millions)	Annual Rate of Natural Increase (%)	Population Projected By Year 2000 (millions)	Persons per Sq. Kilometer of Arable Land
United States	229.8	0.7	258.9	53
Canada	24.1	0.8	26.9	35
Belize	0.2	2.8	0.2	133
Costa Rica	2.3	2.8	3.5	113
El Salvador	4.9	3.2	8.7	383
Guatemala	7.5	3.1	12.8	282
Honduras	3.9	3.5	7.1	104
Mexico	69.3	2.5	101.8	71
Nicaragua	2.5	3.4	4.6	52
Panama	1.9	2.2	2.7	109
Bahamas	0.3	1.7	0.4	1,488
Barbados	0.3	0.9	0.3	692
Cuba	9.8	0.9	12.3	185
Dominica	0.1	1.6	0.1	416
Dominican Republic	5.6	2.8	8.5	205
Grenada	0.1	1.8	0.1	700
Guadeloupe	0.3	1.1	0.4	435
Haiti	6.0	2.6	9.9	425
Jamaica	2.2	2.1	2.8	463
Martinique	0.3	0.9	0.3	592
Netherlands Antilles	0.3	2.2	0.4	3,162

Table 10. Continued .

Country	Population Estimate Mid-1981 (millions)	Annual Rate of Natural Increase (%)	Population Projected By Year 2000 (millions)	Persons per Sq. Kilometer of Arable Land
Puerto Rico	3.2	1.6	4.1	652
St. Lucia	0.1	2.4	0.1	610
St. Vincent & Grenadines	0.1	2.8	0.1	626
Trinidad & Tobago	1.2	2.0	1.4	702
Argentina	28.2	1.6	33.8	16
Bolivia	5.5	2.5	8.9	18
Brazil	121.4	2.4	198.5	58
Chile	11.2	1.5	14.7	63
Colombia	27.8	2.1	42.8	120
Ecuador	8.2	3.1	14.5	159
Guyana	0.8	2.1	1.2	61
Paraguay	3.3	2.6	5.5	20
Peru	18.1	2.7	29.3	59
Surinam	0.4	2.3	0.8	753
Uruguay	2.9	1.0	3.5	19
Venezuela	15.5	3.0	25.9	70

*Based on data compiled by C. Haub of the Population Reference Bureau, Inc. (3272).

efforts at present. Species with small populations that concentrate in these regions during migration or winter are especially vulnerable to severe declines. Table 11 lists those species whose vulnerability appears to be highest based on the size of their populations, location of wintering and transient stopover points, and needs relative to current patterns of habitat destruction.

Research is desperately needed on these and comparable species to document wintering ground and stopover point carrying capacity in primary and disturbed habitats, evidence of breeding population declines, and basic non-breeding ecological data.

Conservation and Attitudes Toward Wildlife

Until very recently most people in the neotropics were pitted against their environment in a desperate struggle to survive. Many people in these countries are still in this position. As noted by Tosi (2877:340) "In all of the countries [of Latin America], without exception, large portions of the population live as they lived 100 years ago or more; rural people, agrarian and pre-industrial, ignorant and poor, dependent on the primitive technology and economy of the barter system at a subsistence or semisubsistence level." [translated from Spanish].

Under these circumstances, forests stand in the way of farmers trying to produce enough food to live and rivers are just conduits for travel, water supply and wastes. Standards of living and education must change for these attitudes to change. Development of a strong conservation ethic

Table 11. Migrant Species Most Likely to Decline in the Near Future.

Species	Most Vulnerable Period[1]	Status[2]	Factors Causing Vulnerability[3]
Little Blue Heron	B	4	P, R, H, C, D
Reddish Egret	W	3	P, R, H, C, D
Glossy Ibis	W	3	P, R, H, C, D
Peregrine Falcon	W	4	P, C
Whooping Crane	M	1	P, R, S
Sandhill Crane	M	4	R, H, C
King Rail	W	3	R, H, C
Piping Plover	W	4	R, H, C
Golden Plover	M	3	S
Eskimo Curlew	M	1	P
Red Knot	M	3	P, S
Stilt Sandpiper	M	3	P, S
Buff-breasted Sandpiper	W	2	P, S, R, D
Northern Phalarope	M	3	S
Common Tern	B	3	H, D
Roseate Tern	B, W	2	P, D, R, H
Sooty Tern	B	2	P, D, R, H
Gull-billed Tern	B	2	D, P
Least Tern	B	2	D, H
White-crowned Pigeon	B	3	R, D
Black-billed Cuckoo	W	3	H
Chuck-will's widow	W	3	H
Yellow-bellied Flycatcher	W	3	H

Table 11. Continued.

Species	Most Vulnerable Period[1]	Status[2]	Factors Causing Vulnerability[3]
Acadian Flycatcher	W	3	H
Wood Thrush	W	3	H
Gray-cheeked Thrush	W	3	H
Veery	W	3	H
Black-capped Vireo	W	3	P, R
Yellow-throated Vireo	W	3	H
Philadelphia Vireo	W	3	P, R, H
Prothonotary Warbler	W	3	H
Swainson's Warbler	W	3	H, R
Worm-eating Warbler	W	3	H
Golden-winged Warbler	W	3	H
Blue-winged Warbler	W	3	H, R
Bachman's Warbler	W	1	P, R, H
Colima Warbler	W	3	P, R
Lucy's Warbler	W	3	P, R
Cape May Warbler	W	3	R, H
Black-throated Blue Warbler	W	3	R, H
Townsend's Warbler	W	3	H
Black-throated Green Warbler	W	3	H
Golden-cheeked Warbler	W	1	P, R, H
Cerulean Warbler	W	3	H

Table 11. Continued.

Species	Most Vulnerable Period[1]	Status[2]	Factors Causing Vulnerability[3]
Chestnut-sided Warbler	W	3	H, R
Bay-breasted Warbler	W	3	R, H
Kirtland's Warbler	W	1	P, R, H
Ovenbird	W	3	H
Louisiana Waterthrush	W	3	H
Kentucky Warbler	W	3	H
Connecticut Warbler	W	3	P, H
Hooded Warbler	W	3	H

[1] B = Breeding; M = Migration; W = Winter.

[2] 1 = Already reduced to near extinction; 2 = Likely to show serious declines within the next decade; 3 = Likely to show declines in the next decade; 4 = Vulnerable but may or may not decline.

[3] C = Exposure to high levels of contaminants; D = Direct disturbance by humans, e.g. hunting, disruption of breeding colonies, etc.; H = Preferred habitat decreasing; P = Small population size; R = Restricted range; S = Vulnerable stopover points where large segments of population concentrate.

requires political and economic stability of a sort that does not exist in most developing nations in the neotropics.

Tosi (2877:340) discusses the terrible problems faced by peasants trying to make a living in Colombia. The good lands are already taken, so many people go to the cities where they live in abject poverty. Others move to the mountains where their efforts to clear land and raise crops end in disaster for themselves and for the land whose soils and hydrologic cycles are destroyed once the covering forests are destroyed. Many of these people then leave the mountains "...to demoralize the more productive rural areas with a cruel and insensate brigandage. And this social and economic instability is increasing in rural areas throughout all of Latin America". [translated from Spanish]

Nevertheless, efforts have been made in nearly all countries of the Western Hemisphere to preserve some lands as parks or reserves (2824) (Tables 12 and 13). Costa Rica has set aside roughly 9 % of its territory. Panama has almost 1 million has. of parks and preserves, over 1/10 of its total area. Bibliographic information on these efforts is summarized in Appendix 6 under "Conservation."

Colombia's conservation efforts are more typical of those of the larger developing countries. Colombia passed its first wildlife protection laws in 1919, passed hunting laws in 1941, and created its first biological reserve in 1948 (2827). Today it has roughly 1.5 million has. protected as national parks or reserves, about 1 % of its total area. Hunsaker (2827: 443) states that the preserves came about thanks to the efforts of a "very

Table 12. Categories of protected areas in the Neotropics.

Country	Classification of Protected Areas[1]							
	I Scientific Reserve	II National Park	III Natural Monument	IV Managed Nature Reserve	V Protected Landscape	IX Biosphere Reserve	X World Heritage Site	Percent of Total Area Protected
Antigua & Barbuda		2,000	500					5.7
Argentina	38,003	2,544,651				981,000		1.3
Bahamas		119,917		1,813				10.8
Barbados			250					0.6
Belize								None reported
Bolivia	11,000	1,818,968		2,520,815		100,000 (137,800)[2]		4.1
Brazil	2,305,838	8,351,383	563					1.3
British Virgin Islands	12	107	323	461	25			6.1
Chile		2,594,038	1,230	370,720		(1,571,766)		4.0
Colombia	127,700	3,811,058						3.4
Costa Rica	22,276	433,322		7,000				9.2
Cuba	24,305							0.2
Dominica		6,840						9.2
Dominican Republic		219,800						4.5

Table 12. Continued.

Classification of Protected Areas[1]

Country	I Scientific Reserve	II National Park	III Natural Monument	IV Managed Nature Reserve	V Protected Landscape	IX Biosphere Reserve	X World Heritage Site	Percent of Total Area Protected
Ecuador	642,000	1,731,200					(691,200)	8.8
El Salvador		1,990		1,000				0.1
French Guiana								None Reported
Guatemala	900	95,830	2,000				(57,600)	0.9
Guyana		11,655						0.05
Haiti					250			0.009
Honduras		22,571	10			350,000		3.4
Jamaica			337					0.02
Martinique	400							0.4
Mexico	52,000	169,578				459,200 (7,000)		0.4
Netherlands Antilles		13,400		55				13.3
Nicaragua		17,300						0.1
Panama		855,502	5,314			(597,000)		11.6

Table 12. Continued.

Country	I Scientific Reserve	II National Park	III Natural Monument	IV Managed Nature Reserve	V Protected Landscape	IX Biosphere Reserve	X World Heritage Site	Percent of Total Area Protected
	Classification of Protected Areas[1]							
Paraguay		1,235,538						3.1
Peru	1,476,680	1,984,606	43,907	777,506	2,800	542,633 (1,421,473)		3.8
Puerto Rico				668				0.07
Surinam	530,000			52,000				3.6
Trinidad & Tobago				24,039				4.7
U. S. Virgin Islands		7,073	356	21				22.0
Uruguay	200,000	19,445						1.3
Venezuela	20,236	7,310,329		56,325				8.2

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[1] Based on IUCN report on conserving the natural heritage of Latin America and the Caribbean (3277). Except for "Percent of Total Area Protected," numbers represent area in hectares.

[2] Numbers in parentheses represent hectares of protected area under more than one classification.

Table 13. Protected habitats of the Neotropics.[1]

Country	Humid Forest (ha)	Desert Scrub & Scrub Forest (ha)	Savannah & Grassland (ha)	Alpine (ha)	Wetlands (ha)	Total (ha)
Antigua/ Barbuda					2,500	2,500
Argentina	131,500	235,551	8,500	3,188,100		3,792,262
Bahamas		121,730				121,730
Barbados					250	250
Belize						None reported
Bolivia	3,316,015	541,200		593,568		4,450,783
Brazil	8,873,855	236,663	1,511,017		36,249	10,657,784
British Virgin Islands		479			479	928
Chile	1,924,898	236,742		804,348		2,965,988
Colombia	2,203,050	492,700	686,000	557,008		3,938,758
Costa Rica	459,398	3,200				462,598
Cuba	24,305					24,305
Dominica		6,840				6,840
Dominican Republic	219,800					219,800

Table 13. Continued.

Country	Humid Forest (ha)	Desert Scrub & Scrub Forest (ha)	Savannah & Grassland	Alpine (ha)	Wetlands (ha)	Total
Ecuador	1,558,000	781,200		34,000		2,373,200
El Salvador	2,990					2,990
Guatemala	82,830	15,900				98,730
Guyana	11,655					11,655
Haita	250					250
Honduras	350,000	22,581				372,581
Jamaica					337	337
Martinique		400				400
Mexico	487,909	192,869				680,778
Netherlands Antilles	7,400				6,055	13,455
Nicaragua	17,300					17,300
Panama	860,816					860,816
Paraguay	11,000	1,219,000		5,538		1,235,538
Peru	3,385,792	384,956		839,790	217,594	4,828,132
Puerto Rico	668					668

Table 13. Continued.

Country	Humid Forest (ha)	Desert Scrub & Scrub Forest (ha)	Savannah & Grassland	Alpine (ha)	Wetlands (ha)	Total
Surinam	482,000		100,000			582,000
Trinidad & Tobago	24,038					24,039
U. S. Virgin Islands	3,644	92			3,714	7,450
Uruguay			219,445			219,445
Venezuela	2,220,000	1,458,890	3,569,000	139,000		7,386,890
Total	26,651,714	5,958,393	6,099,500	6,155,814	267,148	

[1] Based on IUCN report on conserving the natural heritage of Latin America and the Caribbean (3277).

active group of conservationists." He also notes that "As in all developing countries with rapidly expanding economies and populations, the greatest problems for conservation are the destruction of habitat by settlers and commercial (or personal) use of endangered species for economic gain or food."

Karr (2830:131) makes a similar point in discussing conservation problems in the Panama Canal Zone. He states "The major reasons for these losses [of species] are habitat destruction, hunting, pet trade, and continuing fragmentation of habitat."

Economic and social stability are necessary prerequisites to long-term, far-sighted policies of resource use. In most Western Hemisphere nations, the atmosphere for such planning does not exist and the process of desertification continues unabated (3045, 3254, 3049, 3111, 2971, 2970).

In this treatise, we have examined a small, some would say an insignificant part of the environment - the migratory birds that breed in North America and winter in the tropics. Of what significance can birds be when war and famine threaten large segments of the world's human population?

Birds, especially migrants, reflect the health of the environment, the interconnection between environmental deterioration in one area and its direct effects on another area thousands of kilometers away. There are other examples of the possible consequences of grand scale environmental manipulation - acid rain, the "green-house" effect, disruption of the carbon cycle. Each of these has a number of frightening but as yet unproven set of possible consequences. But we know the birds. We know something about their ecology and what happens to them when their wintering habitats are destroyed. Natural balances are being tipped in the oldest terrestial and aquatic ecosystems on earth. Migrants reflect a link between these and other systems, an illustration of how tipping of the scales in the tropics can cause the disruption of Temperate Zone ecosystems. Birds are a small part of the system - but they are a part which we know something about. We know that if tropical environments are destroyed then the birds associated with them, migrants as well as residents, will be destroyed. Their fate should serve as a clear and unequivocal warning that national boundaries are not recognized by the forces of disruption of natural systems.

VII. RECOMMENDATIONS

Preservation of our migrant avifauna will require action in three major areas: (1) National and International Policy,(2) Research, and (3) Management. The listings under each major topic are given in order of priority.

Policy

1. U.S. Government Efforts - Most of the threat to our nearctic migrant avifauna comes from the policies of other countries. However, the United States includes within its territorial boundaries several tropical, subtropical and temperate regions that serve as key stopover and/or wintering areas for nearctic migrants, e.g. Puerto Rico, the U.S. Virgin Islands, Florida, the Gulf Coastal Plain of Texas, Louisiana, Mississippi, and Alabama, the Mississippi Flyway, and the California coast to mention only a few of the most important and well known.

Before we can ask other countries to cooperate with us in preserving a common resource we must be able to demonstrate that we are already doing our best to enhance and preserve these avian resources.

Thus, our national environmental policy should reflect our awareness and concern for the problem of avian population decline, setting an example for other nations to follow. This policy should include political efforts to help migrants, funds for cooperative research between the U.S. and other Western Hemisphere nations, and management directives for Fish & Wildlife personnel.

2. Environmental Impact Statement Emphasis - Environmental impact statements are currently a prerequisite for many development projects. These statements should include seasonal assessments so that a proper evaluation can be made of the effects of proposed development on transients and winter residents as well as on breeding residents.

3. Corporate Environmental Responsibility - Corporations should be required to follow certain explicit environmental guidelines, just as some are now required by their stockholders to follow certain racial policies.

U. S. corporations play an important role in providing the necessary capital and expertise for economic development in many countries of the neotropics. Economic, social and environmental exploitation can have devastating, long-term effects on the developing nation and on its relations with the United States. Environmental exploitation, as pointed out in this report, can also have long-term effects on U. S. avifauna.

4. Dissemination of Research Results - A great deal of research has already been done on the various effects of different kinds of manipulation in different environments in the tropics. Literally billions of investment dollars have been wasted on exploitation policies which had long-term negative results that were predictable based on knowledge that was available at the time of investment. These research data could and should be made available along with sound advice in intelligible form to U. S. and foreign investors in developing countries in the neotropics. Wise

use of resources will benefit both the investor and the sovereign nation in the long run. These data could be made available through U.S. Government agencies or the O.A.S.

5. Conservation Organization Efforts - International conservation organizations should be made aware of the magnitude and the insidious nature of the potential and actual decline in nearctic migrant and resident avifauna due to habitat destruction in the neotropics. These organizations could cooperate with governments in helping to inculcate a conservation ethic within a country, publicize alternative policies of habitat management, and assist local conservation organizations in selecting, obtaining and maintaining critical habitat.

6. International Agreements - The United States Government should seek further multilateral commitments to the protection of migratory birds as an internationally shared resource with all other Western Hemisphere nations. Such agreements should emphasize the need for habitat management policies that minimize effects on avian resources and provide incentives for protecting critical habitats.

7. Habitat Assessment Program - A program should be established to assess the amounts of various habitats in the neotropics. The information accumulated in this program should be disseminated to Western Hemisphere national governments and to international conservation organizations.

8. Wildlife Personnel Training Program - A program should be established to train wildlife personnel from the U.S. and other interested nations in the management of migratory bird resources.

Research

1. Cooperative Nature of Research - The highest priority for research on nearctic migrants is to emphasize the need for joint projects involving scientists from the U.S., Canada, and the various nations of the neotropics. It is essential that the international nature of the problem of avian resource decline be recognized from within the various countries affected. As was emphasized in the body of the report, decline in nearctic migrants is only a symptom of the devastating alteration of environments taking place throughout the neotropics. The resident component of the avifauna is disappearing as well as all of the other flora and fauna of the affected habitats.

2. Effects of Habitat Alteration - Determine the effects of habitat alteration at stopover points and wintering areas.

3. Migrant Carrying Capacity by Habitat - Assess amounts and locations of major habitat types in the neotropics, and the carrying capacities of these habitats with regard to migratory bird species.

4. Migrant Ecology and Distribution - Initiate work on the winter ecology (behavior, home range, resource needs) and distribution of species most vulnerable to disturbance (Table 10).

5. Pollutant Problems - Determine the severity and extent of pollution in the neotropics and its effects on migratory birds.

6. Transient Ecology - Accumulate baseline data on the ecology of transients at stopover points.

7. Winter Resident Ecology - Accumulate baseline data on the ecology of winter residents in different habitats in the neotropics.

8. Migrant Population Levels - Continue the cooperative U. S.-Canada Breeding Bird Surveys along with long-term studies in undisturbed temperate region habitats to monitor the changes in populations of nearctic migrants.

9. Conservation Laws and Enforcement - Develop information on the conservation statutes and enforcement climate in the various countries in the Western Hemisphere.

10. Land Use Alternatives - Continue funding of studies to determine methods of land use that are compatible with the environment. Plans for the dissemination of the results of such projects in understandable form to land users and investors should be included as part of the initial research proposal.

11. Non-passerine Research - Efforts should be made to initiate non-breeding season studies on non-passerines. These groups have been largely neglected in previous ecological research in the neotropics.

Management

1. Personnel Training - Management efforts at enhancing populations of both game and non-game species should be more evenly divided between breeding and non-breeding seasons, rather than concentrated on the former as is done at present. Persons involved at the primary levels of management of National Parks, Seashores, Monuments, Wildlife Refuges, Forests, and other federal lands should be made aware of this need.

2. Seasonal Population Inventories - Population inventories of migratory birds using federal lands should be conducted seasonally to determine land use by these species. These inventories should form the basis for determination of Critical Habitat designation.

3. Preservation of Critical Habitat - Until more specific information is available, management for these species should consist largely of obtaining and preserving habitats. Efforts should be made to identify, obtain and protect as management areas critical stopover and wintering sites particularly for those species whose populations tend to concentrate at a few such sites.

4. Management of Federal Lands in the Neotropics - Special attention should be directed toward managing federal lands in the Virgin Islands and Puerto Rico for preserving habitat for nearctic migrants.

5. Conservation-Education Programs - There is a need to make tax-paying citizens aware of the nature and breadth of the problems facing migratory birds. This development of public awareness could be done through literature and programs presented by Public Relations personnel at National Parks, Seashores, Wildlife Refuges, Monuments, Forests and other areas where management personnel come in contact with the public.

6. Re-introduction of Exterminated Populations - Efforts should be made to re-establish as transient or winter resident populations along the U.S. Atlantic Coast some of the more than 50 species that were common in this region prior to settlement but have been all but eradicated there since.

7. Banding and Marking Programs - Assist other nations of the Western Hemisphere in the development of international banding and marking programs to assess inter- and intra-tropical movements of migrants.

APPENDIX 1.

List of Species Considered as "Nearctic Migrants"

The list contains 332 species of birds all or part of whose populations breed north of the Tropic of Cancer and winter south of that line. The list is presented in taxonomic order following the Checklist of the American Ornithologists' Union. The English names follow the same authority.

The main guide used in formulating the Spanish names was Birkenstein & Tomlinson's "Native Names of Mexican Birds" (3273). We followed the recommendations contained in this excellent and exhaustive summary except where names were based on Indian dialects or local usage apparently unfamiliar to workers in other parts of Latin America.

If a species has resident breeding populations somewhere in the tropics, its scientific name is followed by two asterisks (**). If no members of the species are known to be tropical residents, but one or more congeners breed in the tropics, the species is marked with a single asterisk (*). If there is some question as to whether a conspecific or congeneric population breeds in the tropics, the scientific name is followed by either two question marks (??) or one (?) respectively.

The close relationships that exist between nearctic and neotropical avifaunas are reflected by the taxonomic debates concerning whether or not members of populations should be considered as members of the same species, even if one population breeds in the tropics and the other breeds in the temperate zone. In most cases, where one or more taxonomic authorities recommend that such separate populations be considered conspecific, we have followed their recommendation. As Lack (3253) stated, "Where there is doubt concerning closely related allopatric forms, it is in general better to classify them as subspecies, not species . . . . this has the advantage of indicating their affinity."

The scientific names of the species affected by this procedure are followed by a number (1,2, etc.). By referring to this number at the end of the Appendix, one can find the authorities followed in making the taxonomic decision as well as the semispecies that have been lumped together as populations of the same species within a particular group. The purpose of this treatment is not to make a taxonomic statement. Rather, we are trying to emphasize the ecological and evolutionary affinities of two supposedly separate groups, nearctic migrants and tropical residents.

Scientific Name	English Name	Spanish Name
PODICIPEDIDAE		
Podiceps nigricollis**	Eared Grebe	Zambullidor orejudo
Aechmophorus occidentalis**	Western Grebe	Zambullidor grande
Podilymbus podiceps**	Pied-billed Grebe	Zambullidor picopinto
PELECANIDAE		
Pelecanus erythrorhynchos*	White Pelican	Pelícano blanco
P. occidentalis **	Brown Pelican	Pelícano moreno
PHALACROCORACIDAE		
Phalacrocorax auritus**	Double-crested Cormorant	Cuervo marino
P. olivaceus **	Olivaceous Cormorant	Corvejón
ANHINGIDAE		
Anhinga anhinga**	Anhinga	Añinga
ARDEIDAE		
Ardea herodias **	Great Blue Heron	Garza azul
Butorides striatus** [1]	Green Heron	Garcita verde
Florida caerulea **	Little Blue Heron	Garcita azul
Bubulcus ibis **	Cattle Egret	Garza de ganado
Dichromanassa rufescens **	Reddish Egret	Garza melenuda
Casmerodius albus **	Great Egret	Garzón blanco
Egretta thula **	Snowy Egret	Garza nívea
Hydranassa tricolor **	Louisiana Heron	Garza flaca
Nycticorax nycticorax **	Black-crowned Night Heron	Pedrete gris
Nyctanassa violacea **	Yellow-crowned Night Heron	Pedrete enmascarado
Ixobrychus exilis **	Least Bittern	Garcilla
Botaurus lentiginosus*	American Bittern	Pedrete rayado
CICONIIDAE		
Mycteria americana**	Wood Stork	Cigüeña

BEST DOCUMENT AVAILABLE

Scientific Name	English Name	Spanish Name
THRESKIORNITHIDAE		
Plegadis falcinellus**	Glossy Ibis	Ibis negro
P. chihi **	White-faced Ibis	Ibis cara blanca
Eudocimus albus **	White Ibis	Ibis blanco
Ajaia ajaja **	Roseate Spoonbill	Espátula
ANATIDAE		
Anser albifrons	White-fronted Goose	Oca salvaje
Chen caerulescens	Blue Goose	Ansar real
Dendrocygna autumnalis **	Black-bellied Whistling-Duck	Pichichi
D. bicolor **	Fulvous Whistling-Duck	Pato de árbol
Anas platyrhynchos ** [2]	Mallard	Pato de collar
A. strepera *	Gadwall	Pato pinto
A. acuta *	Pintail	Pato golondrino
A. crecca *	Common Teal	Cerceta aliverde
A. discors ??	Blue-winged Teal	Cerceta aliazul
A. cyanoptera **	Cinnamon Teal	Cerceta café
A. americana *	American Wigeon	Pato panadero
A. clypeata *	Northern Shoveler	Pato cucharón
Aix sponsa **	Wood Duck	Pato de charreteras
Aythya americana **	Redhead	Pato cabeza roja
A. collaris *	Ring-necked Duck	Pato chaparro
A. valisineria *	Canvasback	Pato borrado
A. affinis *	Lesser Scaup	Pato bola
Oxyura jamaicensis ** [3]	Ruddy Duck	Pato chorizo
Lophodytes cucullatus	Hooded Merganser	Mergo de caperuso
Mergus serrator	Red-breasted Merganser	Mergo copetón
CATHARTIDAE		
Cathartes aura **	Turkey Vulture	Aura cabeciroja
Coragyps atratus **	Black Vulture	Gallinazo

Scientific Name	English Name	Spanish Name
ACCIPITRIDAE		
Elanoides forficatus**	Swallow-tailed Kite	Milano golondrino
Ictinia mississippiensis** [4]	Mississippi Kite	Milano plomizo
Accipiter striatus** [5]	Sharp-shinned Hawk	Gavilán pajarero
A. cooperii**	Cooper's Hawk	Gavilán palomero
Buteo jamaicensis**	Red-tailed Hawk	Aguililla ratonera
B. platypterus**	Broad-winged Hawk	Gavilán aludo
B. swainsoni*	Swainson's Hawk	Gavilán chapulinero
B. regalis*	Ferruginous Hawk	Aguililla patas ásperas
Buteogallus anthracinus**	Black Hawk	Aguililla cangrejera
Circus cyaneus** [6]	Marsh Hawk	Gavilán ratonero
PANDIONIDAE		
Pandion haliaetus**	Osprey	Águila pescadora
FALCONIDAE		
Falco mexicanus*	Prairie Falcon	Halcón café
F. peregrinus**	Peregrine Falcon	Halcón peregrino
F. columbarius*	Merlin	Halcón palomero
F. sparverius**	American Kestrel	Cernícalo chitero
GRUIDAE		
Grus americana*	Whooping Crane	Grulla blanca
G. canadensis**	Sandhill Crane	Grulla cenicienta
RALLIDAE		
Rallus elegans**	King Rail	Rascón real
R. limicola**	Virginia Rail	Rascón de agua
Porzana carolina**	Sora	Gallineta de ciénaga
Laterallus jamaicensis**	Black Rail	Gallineta negra
Porphyrula martinica**	Purple Gallinule	Gallareta morada

Scientific Name	English Name	Spanish Name
Gallinula chloropus**	Common Gallinule	Polla de agua
Fulica americana**	American Coot	Gallina del lodo
HAEMATOPODIDAE		
Haematopus palliatus**	American Oystercatcher	Ostrero
CHARADRIIDAE		
Charadrius semipalmatus *	Semipalmated Plover	Avefría frailecilla
C. melodus *	Pining Plover	Avefría chifladora
C. alexandrinus **	Snowy Plover	Avefría nevada
C. wilsonia **	Wilson's Plover	Avefría piquigruesa
C. vociferus **	Killdeer	Kildío
C. montana *	Mountain Plover	Avefría montañes
Pluvialis dominica	American Golden Plover	Avefría dorada
P. squatarola	Black-bellied Plover	Avefría porra
SCOLOPACIDAE		
Arenaria interpres	Ruddy Turnstone	Chorlito común
Capella gallinago ** [7]	Common Snipe	Agachadiza
Numenius americanus	Long-billed Curlew	Zarapito picolargo
N. phaeopus	Whimbrel	Chorlo real
N. borealis	Eskimo Curlew	Zarapito norteño
Bartramia longicauda	Upland Sandpiper	Ganga
Actitis macularia	Spotted Sandpiper	Alzacolita
Tringa solitaria	Solitary Sandpiper	Chorlito solitario
T. melanoleuca	Greater Yellowlegs	Chorlo patiamarillo
T. flavipes	Lesser Yellowlegs	Chorlito patiamarillo
Heteroscelus incanus	Wandering Tattler	Agachadiza vagabunda
Catoptrophorus semipalmatus**	Willet	Zarapito semipalmeado
Aphriza virgata	Surfbird	Chorlito de marejada
Calidris canutus	Red Knot	Chorlito canuto
C. melanotos	Pectoral Sandpiper	Chorlito manchado

Scientific Name	English Name	Spanish Name
C. fuscicollis	White-rumped Sandpiper	Chorlito rabadilla blanca
C. bairdii	Baird's Sandpiper	Chorlito de Baird
C. minutilla	Least Sandpiper	Chorlito minimo
C. pusilla	Semipalmated Sandpiper	Chorlito semipalmeado
C. mauri	Western Sandpiper	Chorlito occidental
C. alba	Sanderling	Chorlito blanco
Limnodromus griseus	Short-billed Dowitcher	Agachona gris
L. scolopaceus	Long-billed Dowitcher	Agachona piquilargo
Micropalama himantopus	Stilt Sandpiper	Chorlito desconocido
Tryngites subruficollis	Buff-breasted Sandpiper	Chorlito canelo
Limosa fedoa	Marbled Godwit	Agachona real
L. haemastica	Hudsonian Godwit	Agachona café
RECURVIROSTRIDAE		
Recurvirostra americana **	American Avocet	Avoceta
Himantopus mexicanus **	Black-necked Stilt	Candelero
PHALAROPODIDAE		
Phalaropus fulicarius	Red Phalarope	Chorlillo rojo
Steganopus tricolor	Wilson's Phalarope	Chorlillo nadador
Lobipes lobatus	Northern Phalarope	Chorlillo norteño
LARIDAE		
Larus glaucescens *	Glaucous-winged Gull	Gaviota de alas glaucas
L. occidentalis*	Western Gull	Gaviota occidental
L. argentatus*	Herring Gull	Gaviota plateada
L. californicus*	California Gull	Gaviota californiana
L. delawarensis*	Ring-billed Gull	Gaviota picoanillado
L. atricilla**	Laughing Gull	Gaviota gritona
L. pipixcan *	Franklin's Gull	Gaviota rosada
L. philadelphia*	Bonaparte's Gull	Gaviota blanca
Xema sabini	Sabine's Gull	Gaviota de Sabine

Scientific Name	English Name	Spanish Name
Gelochelidon nilotica **	Gull-billed Tern	Gaviotina picolargo
Sterna forsteri *	Forster's Tern	Gaviotina de Forster
S. hirundo **	Common Tern	Gaviotina común
S. dougallii **	Roseate Tern	Gaviotina del paraíso
S. fuscata **	Sooty Tern	Gaviotina oscura
S. albifrons **	Least Tern	Gaviotina minima
S. maxima **	Royal Tern	Gaviotina real
S. elegans **	Elegant Tern	Gaviotina elegante
S. sandvicensis ** [8]	Sandwich Tern	Gaviotina de Cabot
S. caspia **	Caspian Tern	Gaviotina cáspica
Chlidonias niger	Black Tern	Gaviotina negra
RYNCHOPIDAE		
Rynchops niger **	Black Skimmer	Rayador negro
COLUMBIDAE		
Columba leucocephala**	White-crowned Pigeon	Torcaz caveciblanca
C. fasciata**	Band-tailed Pigeon	Torcaz ocotera
C. flavirostris**	Red-billed Pigeon	Torcaz morada
Zenaida asiatica**	White-winged Dove	Paloma ala blanco
Z. macroura **	Mourning Dove	Paloma comun
CUCULIDAE		
Coccyzus minor *	Mangrove Cuckoo	Cuclillo manglero
C. americanus **	Yellow-billed Cuckoo	Cuclillo piquiamarillo
C. erythropthalmus *	Black-billed Cuckoo	Cuclillo piquinegro
STRIGIDAE		
Micrathene whitneyi **	Elf Owl	Lechucilla enana
Athene cunicularia **	Burrowing Owl	Lechucilla llanera
Asio flammeus **	Short-eared Owl	Buho orejas cortas

Scientific Name	English Name	Spanish Name
CAPRIMULGIDAE		
Caprimulgus carolinensis **	Chuck-will's-widow	Chotacabra de paso
C. vociferus** 9	Whip-poor-will	Chotacabra gritón
Phalaenoptilus nuttallii **	Poor-will	Chotacabra común
Chordeiles minor**	Common Nighthawk	Chotacabra zumbón
C. acutipennis**	Lesser Nighthawk	Chotacabra halcón
APODIDAE		
Cypseloides niger **	Black Swift	Vencejo negro
Chaetura pelagica ** 10	Chimney Swift	Vencejillo de chimenea
C. vauxi **	Vaux's Swift	Vencejillo común
Aeronautes saxatalis **	White-throated Swift	Vencejo montañés
TROCHILIDAE		
Archilochus colubris	Ruby-throated Hummingbird	Colibrí rubí
A. alexandri	Black-chinned Hummingbird	Colibrí barbinegro
Calypte costae	Costa's Hummingbird	Colibrí garganta violeta
C. anna	Anna's Hummingbird	Colibrí cuello escarlato
Selasphorus platycercus**	Broad-tailed Hummingbird	Colibrí cola ancha
S. rufus*	Rufous Hummingbird	Colibrí dorado
S. sasin*	Allen's Hummingbird	Colibrí petirrojo
Stellula calliope	Calliope Hummingbird	Colibrí rafaguitas
Eugenes fulgens **	Rivoli's Hummingbird	Colibrí magnifico
Lampornis clemenciae **	Blue-throated Hummingbird	Colibrí garganta azul
Amazilia yucatanensis**	Buff-bellied Hummingbird	Colibrí yucateco
A. verticalis**	Violet-crowned Hummingbird	Colibrí corona azul
Cynanthus latirostris**	Broad-billed Hummingbird	Colibrí piquiancho
TROGONIDAE		
Trogon elegans **	Coppery-tailed Trogon	Trogón elegante

Scientific Name	English Name	Spanish Name
ALCEDINIDAE		
Megaceryle alcyon *	Belted Kingfisher	Pescador norteno
PICIDAE		
Sphyrapicus varius	Yellow-bellied Sapsucker	Carpintero saucero
S. thyroideus	Williamson's Sapsucker	Carpintero garganta roja
TYRANNIDAE		
Tyrannus tyrannus *	Eastern Kingbird	Papamoscas viajero
T. dominicensis **	Gray Kingbird	Papamoscas dominicano
T. melancholicus **	Tropical Kingbird	Papamoscas abejero
T. verticalis *	Western Kingbird	Papamoscas avispero
T. crassirostris **	Thick-billed Kingbird	Papamoscas piquigrueso
T. vociferans *	Cassin's Kingbird	Papamoscas chilero
Muscivora forficata *	Scissor-tailed Flycatcher	Papamoscas tijereto
Pitangus sulphuratus **	Kiskadee Flycatcher	Papamoscas kiscadí
Myiodynastes luteiventris **	Sulphur-bellied Flycatcher	Papamoscas cejiblanco
Myiarchus crinitus *	Great Crested Flycatcher	Papamoscas copetón
M. tyrannulus **	Wied's Crested Flycatcher	Papamoscas portugesito
M. cinerascens ** [11]	Ash-throated Flycatcher	Papamoscas cenizo
M. tuberculifer **	Olivaceous Flycatcher	Papamoscas triste
Sayornis phoebe *	Eastern Phoebe	Papamoscas fibí
S. saya *	Say's Phoebe	Papamoscas boyero
Empidonax flaviventris *	Yellow-bellied Flycatcher	Papamoscas olivo
E. virescens *	Acadian Flycatcher	Papamoscas verdoso
E. traillii * [12]	Traill's Flycatcher	Papamoscas saucero
E. minimus *	Least Flycatcher	Papamoscas minimo
E. hammondii *	Hammond's Flycatcher	Papamoscas pasajero
E. oberholseri *	Dusky Flycatcher	Papamoscas oscuro
E. wrightii *	Gray Flycatcher	Papamoscas gris

Scientific Name	English Name	Spanish Name
E. difficilis ** [13]	Western Flycatcher	Papamoscas barranqueño
E. fulvifrons **	Buff-breasted Flycatcher	Papamoscas canelo
Contopus pertinax **	Coues' Flycatcher	Papamoscas tengofrio
C. sordidulus **	Western Wood Pewee	Papamoscas mosquero
C. virens **	Eastern Wood Pewee	Papamoscas norteño
Nuttallornis borealis	Olive-sided Flycatcher	Papamoscas boreal
Pyrocephalus rubinus **	Vermilion Flycatcher	Papamoscas cardenalito
Camptostoma imberbe **	Breardless Flycatcher	Papamoscas lampiño
HIRUNDINIDAE		
Tachycineta thalassina **	Violet-green Swallow	Golondrina verde
Iridoprocne bicolor	Tree Swallow	Golondrina invernal
Riparia riparia	Bank Swallow	Golondrina ribereña
Stelgidopteryx ruficollis **	Rough-winged Swallow	Golondrina aliaserrada
Hirundo rustica **	Barn Swallow	Golondrina tijerilla
Petrochelidon pyrrhonota **	Cliff Swallow	Golondrina risquera
P. fulva **	Cave Swallow	Golondrina pueblera
Progne subis ** [14]	Purple Martin	Martín azul
TROGLODYTIDAE		
Troglodytes aedon ** [15]	House Wren	Troglodita cucarachera
Cistothorus palustris **	Long-billed Marsh Wren	Troglodita pantanera
C. platensis **	Short-billed Marsh Wren	Troglodita de ciénaga
MIMIDAE		
Dumtella carolinensis *	Gray Catbird	Mirla gata
Oreoscoptes montanus	Sage Thrasher	Mirla de las chías
TURDIDAE		
Turdus migratorius **	American Robin	Tordo primavera
Hylocichla mustelina	Wood Thrush	Tordo de la selva
Catharus guttatus **	Hermit Thrush	Tordo solitario

Scientific Name	English Name	Spanish Name
C. ustulatus *	Swainson's Thrush	Tordo espalda oliva
C. minimus*	Gray-cheeked Thrush	Tordo de cara gris
C. fuscescens *	Veery	Tordo rojizo
Sialia sialis **	Eastern Bluebird	Ventura azulillo
S. mexicana **	Western Bluebird	Ventura azul
S. currucoides **	Mountain Bluebird	Ventura de montaña
Myadestes townsendi **	Townsend's Solitaire	Clarin oscuro
SYLVIIDAE		
Polioptila caerulea **	Blue-gray Gnatcatcher	Silvia común
Regulus calendula *	Ruby-crowned Kinglet	Reyezuelo de rojo
MOTACILLIDAE		
Anthus spinoletta *	Water Pipit	Alondra acuática
A. spragueii *	Sprague's Pipit	Alondra de agua
BOMBYCILLIDAE		
Bombycilla cedrorum	Cedar Waxwing	Chinito
LANIIDAE		
Lanius ludovicianus **	Loggerhead Shrike	Verdugo
VIREONIDAE		
Vireo atricapilla *	Black-capped Vireo	Vireo de gorra negra
V. griseus **[16]	White-eyed Vireo	Vireo ojiblanco
V. bellii *	Bell's Vireo	Vireo aceitunado
V. vicinior *	Gray Vireo	Vireo gris
V. flavifrons *	Yellow-throated Vireo	Vireo de garganta amarilla
V. solitarius **	Solitary Vireo	Vireo solitario
V. altiloquus**	Black-whiskered Vireo	Vireo juan chiví

Scientific Name	English Name	Spanish Name
V. olivaceus ** [17]	Red-eyed Vireo	Vireo ojirojo
V. philadelphicus*	Philadelphia Vireo	Vireo filadelfia
V. gilvus** [18]	Warbling Vireo	Vireo gorjeador
PARULIDAE		
Mniotilta varia	Black-and-white Warbler	Verdín trepador
Protonotaria citrea	Prothonotary Warbler	Verdín protonotario
Limnothlypis swainsonii	Swainson's Warbler	Verdín de Swainson
Helmitheros vermivorus	Worm-eating Warbler	Verdín gusanero
Vermivora chrysoptera *	Golden-winged Warbler	Verdín alidorado
V. pinus *	Blue-winged Warbler	Verdín aliazul
V. bachmanii *	Bachman's Warbler	Verdín de Bachman
V. peregrina *	Tennessee Warbler	Verdín semillero
V. celata *	Orange-crowned Warbler	Verdín cabecigris
V. ruficapilla *	Nashville Warbler	Verdín de mono
V. virginiae *	Virginia's Warbler	Verdín de anteojos blancos
V. crissalis *	Colima Warbler	Verdín colimense
V. luciae *	Lucy's Warbler	Verdín de Lucy
Parula americana ** [19]	Parula Warbler	Verdín silvestre
Peucedramus taeniatus**	Olive Warbler	Verdín oliváceo
Dendroica petechia ** [20]	Yellow Warbler	Verdín canario
D. magnolia*	Magnolia Warbler	Verdín pechirayado
D. tigrina*	Cape May Warbler	Verdín atigrado
D. caerulescens*	Black-throated Blue Warbler	Verdín azuloso
D. coronata **	Yellow-rumped Warbler	Verdín de toca
D. nigrescens*	Black-throated Gray Warbler	Verdín gargantinegro
D. townsendi*	Townsend's Warbler	Verdín negriamarillo
D. virens *	Black-throated Green Warbler	Verdín de pecho negro
D. chrysoparia *	Golden-cheeked Warbler	Verdín ocotero
D. occidentalis *	Hermit Warbler	Verdín coronado
D. cerulea *	Cerulean Warbler	Verdín azulado

Scientific Name	English Name	Spanish Name
D. fusca *	Blackburnian Warbler	Verdín pasajero
D. dominica **	Yellow-throated Warbler	Verdín cejiblanco
D. graciae **	Grace's Warbler	Verdín pinero
D. pensylvanica *	Chestnut-sided Warbler	Verdín pardoblanco
D. castanea *	Bay-breasted Warbler	Verdín castaño
D. striata *	Blackpoll Warbler	Verdín de cabeza negra
D. pinus **	Pine Warbler	Verdín de los pinos
D. kirtlandii * [21]	Kirtland's Warbler	Verdín de Kirtland
D. discolor **	Prairie Warbler	Verdín de las praderas
D. palmarum *	Palm Warbler	Verdín playero
Seiurus aurocapillus	Ovenbird	Verdín suelero
S. noveboracensis	Northern Waterthrush	Verdín charquero
S. motacilla	Louisiana Waterthrush	Verdín arroyero
Oporornis formosus ?	Kentucky Warbler	Verdin cachetinegro
O. agilis ?	Connecticut Warbler	Verdín de tupidero
O. philadelphia ?? [22]	Mourning Warbler	Verdín llorón
Geothlypis trichas **	Common Yellowthroat	Verdín tapaojito
Icteria virens **	Yellow-breasted Chat	Verdín arriero
Cardellina rubrifrons **	Red-faced Warbler	Verdín coloradito
Wilsonia citrina	Hooded Warbler	Verdín de capucha
W. pusilla	Wilson's Warbler	Verdín pelucillo
W. canadensis	Canada Warbler	Verdín collarejo
Setophaga ruticilla	American Redstart	Verdín calandrita
Myioborus pictus **	Painted Redstart	Verdín ocotero
ICTERIDAE		
Dolichonyx oryzivorus	Bobolink	Mirlo arrocero
Sturnella magna **	Eastern Meadowlark	Mirlo triguero
S. neglecta *	Western Meadowlark	Mirlo triguero de occidente
Xanthocephalus xanthocephalus ?	Yellow-headed Blackbird	Mirlo cabeza amarilla
Agelaius phoeniceus **	Red-winged Blackbird	Mirlo charretero

Scientific Name	English Name	Spanish Name
Icterus spurius ** [23]	Orchard Oriole	Calandria café
I. graduacauda **	Black-headed Oriole	Calandria hierbera
I. cucullatus **	Hooded Oriole	Calandria zapotera
I. parisorum **	Scott's Oriole	Calandria tunera
I. galbula ** [24]	Northern Oriole	Calandria cañera
Euphagus cyanocephalus ??	Brewer's Blackbird	Mirlo de ojos amarillos
Molothrus ater **	Brown-headed Cowbird	Mirlo negro
M. aeneus **	Bronzed Cowbird	Mirlo ojirojo
THRAUPIDAE		
Piranga ludoviciana *	Western Tanager	Tángara cabeciroja
P. olivacea *	Scarlet Tanager	Tángara olivácea
P. flava **	Hepatic Tanager	Tángara encinera
P. rubra *	Summer Tanager	Tángara avispera
FRINGILLIDAE		
Pheucticus ludovicianus *	Rose-breasted Grosbeak	Piquigrueso rosado
P. melanocephalus *	Black-headed Grosbeak	Piquigrueso tigrillo
Guiraca caerulea **	Blue Grosbeak	Piquigrueso azul
Passerina cyanea *	Indigo Bunting	Gorrión azul
P. amoena *	Lazuli Bunting	Gorrión cabeciazul
P. versicolor **	Varied Bunting	Gorrión morado
P. ciris *	Painted Bunting	Gorrión cuatrocolores
Spiza americana	Dickcissel	Gorrión cuadrillero
Carduelis psaltria **	Lesser Goldfinch	Jilguero capa negra
C. tristis *	American Goldfinch	Jilguero viajero
Pipilo chlorurus *	Green-tailed Towhee	Toquí cola verde
P. erythrophthalmus **	Rufous-sided Towhee	Toquí zarcero
Calamospiza melanocorys	Lark Bunting	Gorrión cañero
Passerculus sandwichensis **	Savannah Sparrow	Gorrión zanjero
Ammodramus savannarum **	Grasshopper Sparrow	Gorrión chapulin

Scientific Name	English Name	Spanish Name
Pooecetes gramineus	Vesper Sparrow	Gorrión torito
Chondestes grammacus	Lark Sparrow	Gorrión maicero
Aimophila ruficeps	Rufous-crowned Sparrow	Gorrión zacaterillo
A. botterii** 25	Botteri's Sparrow	Gorrión corona rojiza
Spizella passerina**	Chipping Sparrow	Gorrión llanero
S. breweri *	Brewer's Sparrow	Gorrión pálido
S. pallida *	Field Sparrow	Gorrión de Brewer
S. atrogularis*	Black-chinned Sparrow	Gorrión carbonero
Zonotrichia leucophrys *	White-crowned Sparrow	Gorrión mixto
Melospiza lincolnii *	Lincoln's Sparrow	Gorrión sabanero
M. georgiana *	Swamp Sparrow	Gorrión pantanero

1) *B. striatus*, *B. virescens* - A.O.U. Checklist (40)

2) *A. platyrhynchos*, *A. diazi*, *A. fulvigula* - Mayr & Short (2555)

3) *O. jamaicensis*, *O. ferruginea* - Meyer de Schauensee (886)

4) *I. mississippiensis*, *I. plumbea* - Sutton (3258)

5) *A. striatus*, *A erythrocnemius* - Mayr & Short (2555)

6) *C. cyaneus*, *C. cinereus* - Ridgway (31)

7) *C. gallinago*, *C. paraguaiae* - Meyer de Schauensee (886)

8) *S. sandvicensis*, *S. eurygnatha* - Junge & Voous (1841)

9) *C. vociferus*, *C. noctitherus* - Peters (11)

10) *C. pelagica*, *C. chapmanii* - Lack (3253)

11) *M. cinerascens*, *M. nuttingi* - van Rossem (1959)

12) *E. traillii*, *E. alnorum* - A.O.U. Checklist (38)

13) *E. difficilis*, *E. flavescens* - Phillips et al. (59)

14) *P. subis*, *P. chalybea*, *P. cryptoleuca*, *P. dominicensis*, *P. modesta* - Ridgway (31)

15) *T. aedon*, *T. musculus*, *T. brunneicollis* - Meyer de Schauensee (886)

16) *V. griseus*, *V. pallens*, *V. crassirostris*, *V. gundlachii*, *V. modestus*, *V. caribaeus* - Hamilton (2010)

17) *V. olivaceus*, *V. chivi*, *V. flavoviridis* - Mayr & Short (2555)

18) *V. gilvus*, *V. leucophrys* - Hamilton (2010)

19) *P. americana*, *P. pitiayumi*, *P. graysoni* - Mayr & Short (2555)

20) *D. petechia*, *D. erithrachorides* - Meyer de Schauensee (886)

21) *D. discolor*, *D. vitellina* - Bond (585)

22) *O. philadelphia*, *O. tolmiei* - Meyer de Schauensee (886)

23) *I. spurius*, *I. fuertesi* - Peters (11)

24) *I. galbula*, *I. abeillei* - Peters (11)

25) *A. botterii*, *A. petencia* - Webster (2210)

APPENDIX 2.

Habitats Used by Migrants

We have divided the tropical environment into three major categories - Shrub-Steppe, Forest, and Aquatic. Each of these divisions is further broken down into habitat types as given below:

Shrub-Steppe

Alpine - Stunted trees, grasses, sedges, mosses.

Desert - Sparse cover of xerophytic plants.

Grassland

Savannah

Scrub - Dense, low cover of woody vegetation.

Forest

Coniferous

Mixed Coniferous - Broadleaf

Deciduous (seasonal) Broadleaf

Broadleaf Evergreen (aseasonal)

Gallery - Woody vegetation bordering fresh water.

Aquatic

Freshwater Wetlands

Brackish Wetlands - Salt Marsh, Lagoon, Mangrove.

Seashore - Littoral zone, Beach, Tidal flats.

Coastal Marine

Migrant habitat preferences , as given in this Appendix, are based on published accounts for winter or permanent resident birds in the tropics.

	Alpine	Desert	Grassland	Savannah	Scrub	Coniferous	Mixed	Deciduous	Broadleaf	Gallery	Freshwater	Brackish	Seashore	Coastal
PODICIPEDIDAE														
Podiceps nigricollis											+	+		+
Aechmophorus occidentalis											+	+		+
Podilymbus podiceps											+	+		+
PELECANIDAE														
Pelecanus erythrorhynchos											+	+		+
P. occidentalis												+		+
PHALACROCORACIDAE														
Phalacrocorax auritus											+	+		+
P. olivaceus											+	+		
ANHINGIDAE														
Anhinga anhinga											+	+		
ARDEIDAE														
Ardea herodias											+	+		
Butorides striatus											+	+		
Florida caerulea				+							+	+		
Bubulcus ibis			+	+							+			
Dichromanassa rufescens												+		
Casmerodius albus											+	+		
Egretta thula											+	+		
Hydranassa tricolor											+			
Nycticorax nycticorax											+			
Nyctanassa violacea										+	+			
Ixobrychus exilis											+	+		
Botaurus lentiginosus											+			
CICONIIDAE														
Mycteria americana											+	+		

	Alpine	Desert	Grassland	Savannah	Scrub	Coniferous	Mixed	Deciduous	Broadleaf	Gallery	Freshwater	Brackish	Seashore	Coastal
THRESKIORNITHIDAE														
Plegadis falcinellus											+	+		
P. chihi											+	+		
Eudocimus albus											+	+		
Ajaia ajaja												+		
ANATIDAE														
Anser albifrons											+	+		
Chen caerulescens											+	+		
Dendrocygna autumnalis											+	+		
D. bicolor											+	+		
Anas platyrhynchos											+	+		
A. strepera											+			
A. acuta											+	+		
A. crecca											+	+		
A. discors											+	+		
A. cyanoptera											+	+		
A. americana											+	+		
A. clypeata											+	+		
Aix sponsa											+			
Aythya americana											+	+		
A. collaris											+	+		
A. valisineria											+	+		
A. affinis											+	+		
Oxyura jamaicensis											+	+		
Lophodytes cucullatus											+	+		
Mergus serrator												+		
CATHARTIDAE														
Cathartes aura		+	+	+	+			+	+	+				
Coragyps atratus		+	+	+	+									

	Alpine	Desert	Grassland	Savannah	Scrub	Coniferous	Mixed	Deciduous	Broadleaf	Gallery	Freshwater	Brackish	Seashore	Coastal
ACCIPITRIDAE														
Elanoides forficatus									+	+				
Ictinia mississippiensis									+	+				
Accipiter striatus				+		+	+	+						
A. cooperii						+	+		+					
Buteo jamaicensis	+		+		+	+	+	+						
B. platypterus								+	+	+				
B. swainsoni			+	+	+									
B. regalis		+	+	+	+									
Buteogallus anthracinus								+	+	+		+		
Circus cyaneus			+	+										
PANDIONIDAE														
Pandion haliaetus											+	+		
FALCONIDAE														
Falco mexicanus														
F. peregrinus											+	+		
F. columbarius				+		+	+					+		
F. sparverius			+	+	+									
GRUIDAE														
Grus americana											+	+		
G. canadensis			+	+							+			
RALLIDAE														
Rallus elegans											+			
R. limicola											+			
Porzana carolina											+	+		
Laterallus jamaicensis											+	+		
Porphyrula martinica											+	+		

	Alpine	Desert	Grassland	Savannah	Scrub	Coniferous	Mixed	Deciduous	Broadleaf	Gallery	Freshwater	Brackish	Seashore	Coastal
Gallinula chloropus											+	+		
Fulica americana											+	+		
HAEMATOPODIDAE														
Haematopus palliatus												+	+	
CHARADRIIDAE														
Charadrius semipalmatus													+	
C. melodus													+	
C. alexandrinus													+	
C. wilsonia												+	+	
C. vociferus			+	+							+	+		
C. montana			+	+										
Pluvialis dominica			+	+							+		+	
P. squatarola													+	
SCOLOPACIDAE														
Arenaria interpres													+	
Capella gallinago			+								+			
Numenius americanus			+	+							+	+		
N. phaeopus											+	+	+	
N. borealis			+	+								+	+	
Bartramia longicauda			+	+										
Actitis macularia											+	+	+	
Tringa solitaria											+			
T. melanoleuca											+	+		
T. flavipes											+	+	+	
Heteroscelus incanus													+	
Catoptrophorus semipalmatus												+	+	
Aphriza virgata													+	
Calidris canutus													+	
C. melanotos			+								+		+	

	Alpine	Desert	Grassland	Savannah	Scrub	Coniferous	Mixed	Deciduous	Broadleaf	Gallery	Freshwater	Brackish	Seashore	Coastal
C. fuscicollis			+								+	+	+	
C. bairdii			+								+		+	
C. minutilla											+	+	+	
C. pusilla											+	+	+	
C. mauri													+	
C. alba													+	
Limnodromus griseus											+	+	+	
L. scolopaceus											+	+	+	
Micropalama himantopus											+	+	+	
Tryngites subruficollis			+	+							+			
Limosa fedoa			+								+	+	+	
L. haemastica												+	+	
RECURVIROSTRIDAE														
Recurvirostra americana											+	+		
Himantopus mexicanus											+	+	+	
PHALAROPODIDAE														
Phalaropus fulicarius												+	+	+
Steganopus tricolor											+	+	+	
Lobipes lobatus												+	+	+
LARIDAE														
Larus glaucescens												+	+	+
L. occidentalis												+	+	+
L. argentatus												+	+	+
L. californicus												+	+	+
L. delawarensis											+	+	+	+
L. atricilla												+	+	+
L. pipixcan			+								+	+	+	+
L. philadelphia											+	+	+	+
Xema sabini													+	+

	Alpine	Desert	Grassland	Savannah	Scrub	Coniferous	Mixed	Deciduous	Broadleaf	Gallery	Freshwater	Brackish	Seashore	Coastal
Gelochelidon nilotica			+								+	+	+	
Sterna forsteri											+	+	+	
S. hirundo												+	+	
S. dougallii												+	+	
S. fuscata													+	+
S. albifrons											+	+	+	+
S. maxima											+	+	+	+
S. elegans												+	+	+
S. sandvicensis												+	+	+
S. caspia												+	+	+
Chlidonias niger											+	+	+	
RYNCHOPIDAE														
Rynchops niger												+	+	
COLUMBIDAE														
Columba leucocephala					+			+	+			+		
C. fasciata					+			+	+					
C. flavirostris					+			+						
Zenaida asiatica		+	+	+	+			+						
Z. macroura			+	+	+									
CUCULIDAE														
Coccyzus minor					+					+		+		
C. americanus					+			+		+				
C. erythropthalmus				+	+			+						
STRIGIDAE														
Micrathene whitneyi		+												
Athene cunicularia			+	+	+									
Asio flammeus			+	+							+			

	Alpine	Desert	Grassland	Savannah	Scrub	Coniferous	Mixed	Deciduous	Broadleaf	Gallery	Freshwater	Brackish	Seashore	Coastal
CAPRIMULGIDAE														
Caprimulgus carolinensis								+	+	+				
C. vociferus						+	+	+	+					
Phalaenoptilus nuttallii		+		+	+									
Chordeiles minor			+	+										
C. acutipennis		+	+	+	+			+						
APODIDAE														
Cypseloides niger	+	+	+	+	+									
Chaetura pelagica								+	+	+				
C. vauxi							+	+	+					
Aeronautes saxatalis		+	+		+									
TROCHILIDAE														
Archilochus colubris							+	+	+					
A. alexandri				+	+			+						
Calypte costae		+		+	+									
C. anna		+		+	+									
Selasphorus platycercus	+													
S. rufus				+		+	+							
S. sasin					+									
Stellula calliope						+	+							
Eugenes fulgens						+	+							
Lampornis clemenciae		+				+	+							
Amazilia yucatanensis				+	+									
A. verticalis				+	+					+				
Cynanthus latirostris		+		+										
TROGONIDAE														
Trogon elegans					+		+	+		+				

	Alpine	Desert	Grassland	Savannah	Scrub	Coniferous	Mixed	Deciduous	Broadleaf	Gallery	Freshwater	Brackish	Seashore	Coastal
ALCEDINIDAE														
Megaceryle alcyon											+	+		
PICIDAE														
Sphyrapicus varius						+	+	+	+	+				
S. thyroideus						+	+							
TYRANNIDAE														
Tyrannus tyrannus				+				+	+	+				
T. dominicensis				+	+							+		
T. melancholicus				+	+									
T. verticalis				+										
T. crassirostris				+	+									
T. vociferans			+	+										
Muscivora forficata			+	+										
Pitangus sulphuratus								+	+	+				
Myiodynastes luteiventris								+	+	+				
Myiarchus crinitus								+	+	+				
M. tyrannulus					+			+		+				
M. cinerascens		+	+	+	+			+		+				
M. tuberculifer								+	+	+				
Sayornis phoebe				+	+					+				
S. saya		+	+	+	+									
Empidonax flaviventris								+	+	+				
E. virescens									+	+				
E. traillii					+			+		+	+			
E. minimus				+	+			+		+				
E. hammondii						+	+	+		+				
E. oberholseri					+					+				
E. wrightii		+		+						+				

	Alpine	Desert	Grassland	Savannah	Scrub	Coniferous	Mixed	Deciduous	Broadleaf	Gallery	Freshwater	Brackish	Seashore	Coastal
E. difficilis						+	+	+	+	+				
E. fulvifrons						+	+	+		+				
Contopus pertinax						+	+	+						
C. sordidulus						+	+		+					
C. virens					+	+	+	+	+	+				
Nuttallornis borealis								+	+	+				
Pyrocephalus rubinus		+		+	+									
Camptostoma imberbe		+		+	+					+				
HIRUNDINIDAE														
Tachycineta thalassina	+		+			+	+	+						
Iridoprocne bicolor											+	+		
Riparia riparia			+	+							+	+		
Stelgidopteryx ruficollis			+	+				+	+	+	+			
Hirundo rustica			+	+							+			
Petrochelidon pyrrhonota			+	+							+			
P. fulva			+	+							+			
Progne subis			+	+							+	+		
TROGLODYTIDAE														
Troglodytes aedon					+		+	+	+	+				
Cistothorus palustris											+	+		
C. platensis			+								+			
MIMIDAE														
Dumtella carolinensis					+					+				
Oreoscoptes montanus		+												
TURDIDAE														
Turdus migratorius						+	+	+						
Hylocichla mustelina									+	+				
Catharus guttatus						+	+	+		+				

	Alpine	Desert	Grassland	Savannah	Scrub	Coniferous	Mixed	Deciduous	Broadleaf	Gallery	Freshwater	Brackish	Seashore	Coastal
C. ustulatus									+					
C. minimus									+					
C. fuscescens									+					
Sialia sialis				+		+	+	+						
S. mexicana	+					+	+							
S. currucoides	+					+	+							
Myadestes townsendi						+	+							
SYLVIIDAE														
Polioptila caerulea					+	+			+	+				
Regulus calendula						+	+	+		+				
MOTACILLIDAE														
Anthus spinoletta		+	+								+			
A. spragueii			+								+			
BOMBYCILLIDAE														
Bombycilla cedrorum								+	+	+				
LANIIDAE														
Lanius ludovicianus				+	+									
VIREONIDAE														
Vireo atricapilla					+									
V. griseus					+			+	+	+				
V. bellii					+					+				
V. vicinior					+									
V. flavifrons								+	+	+				
V. solitarius						+	+	+						
V. altiloquus								+	+	+		+		

	Alpine	Desert	Grassland	Savannah	Scrub	Coniferous	Mixed	Deciduous	Broadleaf	Gallery	Freshwater	Brackish	Seashore	Coastal
V. olivaceus								+	+	+				
V. philadelphicus								+	+	+				
V. gilvus						+	+	+						
PARULIDAE														
Mniotilta varia					+	+		+	+	+		+		
Protonotaria citrea										+		+		
Limnothlypis swainsonii					+				+	+				
Helmitheros vermivorus					+				+	+				
Vermivora chrysoptera									+	+				
V. pinus									+	+				
V. bachmanii											+			
V. peregrina								+	+	+				
V. celata					+	+	+		+	+				
V. ruficapilla					+	+								
V. virginiae				+	+									
V. crissalis						+	+							
V. luciae				+	+					+				
Parula americana					+			+	+	+		+		
Peucedramus taeniatus						+	+							
Dendroica petechia				+						+		+		
D. magnolia						+		+	+	+				
D. tigrina					+				+					
D. caerulescens					+				+					
D. coronata			+	+	+	+	+				+			
D. nigrescens						+	+	+						
D. townsendi						+	+	+	+					
D. virens					+	+			+	+				
D. chrysoparia						+	+							
D. occidentalis						+	+							
D. cerulea								+	+	+				

	Alpine	Desert	Grassland	Savannah	Scrub	Coniferous	Mixed	Deciduous	Broadleaf	Gallery	Freshwater	Brackish	Seashore	Coastal
D. fusca								+	+	+				
D. dominica				+		+				+		+		
D. graciae				+		+	+							
D. pensylvanica									+	+				
D. castanea								+	+	+				
D. striata									+					
D. pinus						+								
D. kirtlandii					+									
D. discolor					+				+					
D. palmarum				+					+			+		
Seiurus aurocapillus					+				+	+		+		
S. noveboracensis										+	+	+		
S. motacilla									+	+				
Oporornis formosus									+	+				
O. agilis										+				
O. philadelphia										+	+			
Geothlypis trichas										+	+	+		
Icteria virens					+									
Cardellina rubrifrons						+	+							
Wilsonia citrina									+	+		+		
W. pusilla					+			+	+	+				
W. canadensis								+	+					
Setophaga ruticilla					+			+	+	+				
Myioborus pictus						+	+							
ICTERIDAE														
Dolichonyx oryzivorus			+	+							+			
Sturnella magna			+	+										
S. neglecta			+	+										
Xanthocephalus xanthocephalus											+			
Agelaius phoeniceus											+			

	Alpine	Desert	Grassland	Savannah	Scrub	Coniferous	Mixed	Deciduous	Broadleaf	Gallery	Freshwater	Brackish	Seashore	Coastal
Icterus spurius				+							+			
I. graduacauda				+							+			
I. cucullatus				+						+				
I. parisorum				+	+									
I. galbula				+					+	+				
Euphagus cyanocephalus			+	+						+				
Molothrus ater			+	+	+									
M. aeneus			+	+	+									
THRAUPIDAE														
Piranga ludoviciana						+	+			+				
P. olivacea									+	+				
P. flava						+	+	+	+	+				
P. rubra									+	+				
FRINGILLIDAE														
Pheucticus ludovicianus						+	+	+	+	+				
P. melanocephalus						+	+	+	+	+				
Guiraca caerulea				+										
Passerina cyanea				+										
P. amoena				+										
P. versicolor					+									
P. ciris				+	+					+				
Spiza americana				+										
Carduelis psaltria				+		+	+							
C. tristis			+	+	+									
Pipilo chlorurus				+	+									
P. erythrophthalmus				+		+	+	+						
Calamospiza melanocorys			+	+										
Passerculus sandwichensis			+								+			
Ammodramus savannarum			+											

	Alpine	Desert	Grassland	Savannah	Scrub	Coniferous	Mixed	Deciduous	Broadleaf	Gallery	Freshwater	Brackish	Seashore	Coastal
Pooecetes gramineus			+											
Chondestes grammacus			+											
Aimophila ruficeps				+	+		+							
A. botterii			+	+										
Spizella passerina				+		+	+							
S. breweri		+												
S. pallida			+											
S. atrogularis				+	+									
Zonotrichia leucophrys				+										
Melospiza lincolnii				+		+	+				+			
M. georgiana											+			

APPENDIX 3.

Food Use by Nearctic Migrants

We recognized ten food use categories for nearctic migrants. Dead as opposed to living animal and plant parts were not considered as a separate category. The categories are listed below:

1. Terrestrial Vegetative Plant Parts - leaves, buds, roots, sap
2. Fruit
3. Nectar
4. Seeds
5. Terrestrial, Arboreal and Aerial Invertebrates
6. Soil and Litter Invertebrates
7. Terrestrial, Arboreal or Aerial Vertebrates
8. Aquatic Vertebrates
9. Aquatic Invertebrates
10. Aquatic Plants and Plankton

Determination of the categories was based on published diet information pertaining to migrant species during any phase of the annual cycle. Where we felt the data warranted, we have shown the relative importance of a food category in the "normal" diet, recognizing that what is "normal" in the diet will vary according to availability and competition.

++ - Food item constitutes the major portion of a normal diet.
+ - Food item constitutes a significant portion of the normal diet.
o - Food item constitutes a small portion of the normal diet.

	Terrestrial Plants	Fruit	Nectar	Seeds	Terrestrial Invertebrates	Soil or Litter Invertebrates	Terrestrial Vertebrates	Aquatic Vertebrates	Aquatic Invertebrates	Aquatic Plants or Plankton
PODICIPEDIDAE										
Podiceps nigricollis					+			+		
Aechmophorus occidentalis					+			+	+	0
Podilymbus podiceps					+			+	+	0
PELECANIDAE										
Pelecanus erythrorhynchos								+	+	
P. occidentalis								+	+	
PHALACROCORACIDAE										
Phalacrocorax auritus								+	0	0
P. olivaceus								+	+	+
ANHINGIDAE										
Anhinga anhinga								+	+	0
ARDEIDAE										
Ardea herodias					+		+	+	+	0
Butorides striatus					+			+	+	
Florida caerulea					+		+	+	+	
Bubulcus ibis					+		+			
Dichromanassa rufescens								+	+	
Casmerodius albus					+		+	+	+	
Egretta thula					+		+	+	+	
Hydranassa tricolor					+			+	+	
Nycticorax nycticorax					+		+	+	+	0
Nyctanassa violacea					0		0	0	+	
Ixobrychus exilis					+		0	+	+	
Botaurus lentiginosus					+		+	+	+	
CICONIIDAE										
Mycteria americana					+		+	+	+	0

	Terrestrial Plants	Fruit	Nectar	Seeds	Terrestrial Invertebrates	Soil or Litter Invertebrates	Terrestrial Vertebrates	Aquatic Vertebrates	Aquatic Invertebrates	Aquatic Plants or Planton
THRESKIORNITHIDAE										
Plegadis falcinellus					+		+	+	+	
P. chihi					+		+	+	+	
Eudocimus albus					+		+	+	+	
Ajaia ajaja								+	+	+
ANATIDAE										
Anser albifrons	+			+					0	+
Chen caerulescens	+	+		+					+	+
Dendrocygna autumnalis									+	+
D. bicolor									+	+
Anas platyrhynchos				+	+			0	+	+
A. strepera	+			+					+	+
A. acuta	+			+					+	+
A. crecca	+	+		+	0				+	+
A. discors				+					+	+
A. cyanoptera									+	+
A. americana									+	+
A. clypeata								0	+	+
Aix sponsa				+				0	+	+
Aythya americana					+			+	+	+
A. collaris									+	+
A. valisineria									+	+
A. affinis								+	+	+
Oxyura jamaicensis								0	+	+
Lophodytes cucullatus								+	+	
Mergus serrator								+	+	
CATHARTIDAE										
Cathartes aura					0		+	+		
Coragyps atratus					0		+	+		

	Terrestrial Plants	Fruit	Nectar	Seeds	Terrestrial Invertebrates	Soil or Litter Invertebrates	Terrestrial Vertebrates	Aquatic Vertebrates	Aquatic Invertebrates	Aquatic Plants or Planton
ACCIPITRIDAE										
Elanoides forficatus					+		+			
Ictinia mississippiensis					++		+			
Accipiter striatus					+		++			
A. cooperii					+		++	0		
Buteo jamaicensis					+		++		0	
B. platypterus					++		+		0	
B. swainsoni					++		+			
B. regalis					+		+			
Buteogallus anthracinus					+		+		+	
Circus cyaneus					+		+			
PANDIONIDAE										
Pandion haliaetus					0		0	+		
FALCONIDAE										
Falco mexicanus							++			
F. peregrinus					0		++			
F. columbarius					+		++			
F. sparverius					+		+			
GRUIDAE										
Grus americana	+	+			+		+	+	+	
G. canadensis	+	+			+		+	+	+	
RALLIDAE										
Rallus elegans									+	+
R. limicola								0	+	+
Porzana carolina					+				+	+
Laterallus jamaicensis					+				+	+
Porphyrula martinica									+	+

	Terrestrial Plants	Fruit	Nectar	Seeds	Terrestrial Invertebrates	Soil or Litter Invertebrates	Terrestrial Vertebrates	Aquatic Vertebrates	Aquatic Invertebrates	Aquatic Plants or Planton
Gallinula chloropus					+				+	+
Fulica americana	+			+	+			+	+	+
HAEMATOPODIDAE										
Haematopus palliatus					o			o	+	
CHARADRIIDAE										
Charadrius semipalmatus					+	+			+	
C. melodus					+	+			+	
C. alexandrinus					+	+			+	
C. wilsonia					+	+			+	
C. vociferus					+	+			+	
C. montana					+	+				
Pluvialis dominica			o		+	+			+	
P. squatarola		+			+	+			+	
SCOLOPACIDAE										
Arenaria interpres					+	+			+	
Capella gallinago				o	+	+			+	
Numenius americanus		o			+	+			+	
N. phaeopus		o		o	+	+			+	
N. borealis		+			+	+			+	
Bartramia longicauda				+	+	+			+	
Actitis macularia					+	+		o	+	
Tringa solitaria					+	+			+	
T. melanoleuca					+	+		+	+	
T. flavipes					+	+			+	
Heteroscelus incanus					+	+			+	
Catoptrophorus semipalmatus					+	+			+	
Aphriza virgata				o	+	+			+	
Calidris canutus					+	+			+	
C. melanotos					+	+			+	

	Terrestrial Plants	Fruit	Nectar	Seeds	Terrestrial Invertebrates	Soil or Litter Invertebrates	Terrestrial Vertebrates	Aquatic Vertebrates	Aquatic Invertebrates	Aquatic Plants or Planton
C. fuscicollis					+	+			+	
C. bairdii				o	+	+			+	
C. minutilla					+	+			+	
C. pusilla					+	+			+	
C. mauri					+	+			+	
C. alba				0	+	+			+	0
Limnodromus griseus				0		+			+	
L. scolopaceus						+			+	
Micropalama himantopus				+	+	+	o	o	+	+
Tryngites subruficollis					+	+			+	
Limosa fedoa					+	+			+	
L. haemastica					+	+			+	
RECURVIROSTRIDAE										
Recurvirostra americana				+	+	+			+	+
Himantopus mexicanus					+	+		o	+	
PHALAROPODIDAE										
Phalaropus fulicarius					+				+	+
Steganopus tricolor					+				+	+
Lobipes lobatus					+				+	+
LARIDAE										
Larus glaucescens					+		+	+	+	
L. occidentalis							+	+	+	
L. argentatus							+	+	+	
L. californicus					+		+	+	+	
L. delawarensis					+		+	+	+	
L. atricilla							+	+	+	
L. pipixcan					+	+		+	+	
L. philadelphia					+			+	+	
Xema sabini					+			+	+	

	Terrestrial Plants	Fruit	Nectar	Seeds	Terrestrial Invertebrates	Soil or Litter Invertebrates	Terrestrial Vertebrates	Aquatic Vertebrates	Aquatic Invertebrates	Aquatic Plants or Planton
Gelochelidon nilotica					+			0	0	
Sterna forsteri					+			+	+	
S. hirundo					+			+	+	
S. dougallii								+	0	
S. fuscata								+	+	
S. albifrons								+	+	
S. maxima								+	+	
S. elegans								+	+	
S. sandvicensis								+	+	
S. caspia								+	+	
Chlidonias niger					+			+	+	
RYNCHOPIDAE										
Rynchops niger								+	+	
COLUMBIDAE										
Columba leucocephala		++		+	+					
C. fasciata		++		+	+					
C. flavirostris		++		+						
Zenaida asiatica		+		+		+				
Z. macroura		+		+	+	+				
CUCULIDAE										
Coccyzus minor		+			+					
C. americanus		+		+		0				
C. erythropthalmus		+		+		0				
STRIGIDAE										
Micrathene whitneyi				+		0				
Athene cunicularia				+		+				
Asio flammeus				+		+				

	Terrestrial Plants	Fruit	Nectar	Seeds	Terrestrial Invertebrates	Soil or Litter Invertebrates	Terrestrial Vertebrates	Aquatic Vertebrates	Aquatic Invertebrates	Aquatic Plants or Planton
CAPRIMULGIDAE										
Caprimulgus carolinensis					+		+			
C. vociferus					+					
Phalaenoptilus nuttallii					+					
Chordeiles minor					+					
C. acutipennis					+					
APODIDAE										
Cypseloides niger					+					
Chaetura pelagica					+					
C. vauxi					+					
Aeronautes saxatalis					+					
TROCHILIDAE										
Archilochus colubris			+		+					
A. alexandri			+		+					
Calypte costae			+		+					
C. anna			+		+					
Selasphorus platycercus			+		+					
S. rufus		o	+		+					
S. sasin			+		+					
Stellula calliope			+		+					
Eugenes fulgens			+		+					
Lampornis clemenciae			+		+					
Amazilia yucatanensis			+		+					
A. verticalis			+		+					
Cynanthus latirostris			+		+					
TROGONIDAE										
Trogon elegans		+			+		+			

	Terrestrial Plants	Fruit	Nectar	Seeds	Terrestrial Invertebrates	Soil or Litter Invertebrates	Terrestrial Vertebrates	Aquatic Vertebrates	Aquatic Invertebrates	Aquatic Plants or Planton
ALCEDINIDAE										
Megaceryle alcyon		0			+		+	+	+	
PICIDAE										
Sphyrapicus varius	+	+	+		+					
S. thyroideus	+	+	+		+					
TYRANNIDAE										
Tyrannus tyrannus		+			+					
T. dominicensis		+			+					
T. melancholicus		+			+					
T. verticalis		+			+					
T. crassirostris		+			+					
T. vociferans		+			+					
Muscivora forficata		0			+					
Pitangus sulphuratus		+			+					
Myiodynastes luteiventris		+			+					
Myiarchus crinitus		+			+					
M. tyrannulus		+			+					
M. cinerascens		+			+					
M. tuberculifer					+					
Sayornis phoebe		+			+					
S. saya		0		0	+					
Empidonax flaviventris		+			+					
E. virescens		+			+					
E. traillii		+			+					
E. minimus		+			+					
E. hammondii		+			+					
E. oberholseri		+			+					
E. wrightii		+			+					

	Terrestrial Plants	Fruit	Nectar	Seeds	Terrestrial Invertebrates	Soil or Litter Invertebrates	Terrestrial Vertebrates	Aquatic Vertebrates	Aquatic Invertebrates	Aquatic Plants or Planton
E. difficilis		+			+					
E. fulvifrons		+			+					
Contopus pertinax		+			+					
C. sordidulus		+			+					
C. virens		+			+					
Nuttallornis borealis					+					
Pyrocephalus rubinus					++					
Camptostoma imberbe		+			++					
HIRUNDINIDAE										
Tachycineta thalassina					++					
Iridoprocne bicolor		+			++					
Riparia riparia					++					
Stelgidopteryx ruficollis					++					
Hirundo rustica		0			++					
Petrochelidon pyrrhonota		0			++					
P. fulva					++					
Progne subis					+					
TROGLODYTIDAE										
Troglodytes aedon					++					
Cistothorus palustris					++					
C. platensis					++					
MIMIDAE										
Dumtella carolinensis		+			+					
Oreoscoptes montanus		+			+					
TURDIDAE										
Turdus migratorius		+			++	+				
Hylocichla mustelina		+			++	+	+			
Catharus guttatus		+			++	+				

	Terrestrial Plants	Fruit	Nectar	Seeds	Terrestrial Invertebrates	Soil or Litter Invertebrates	Terrestrial Vertebrates	Aquatic Vertebrates	Aquatic Invertebrates	Aquatic Plants or Planton
C. ustulatus		+			++	+				
C. minimus		+			++	+				
C. fuscescens		+			++	+				
Sialia sialis		+			++	0				
S. mexicana		+			++	0				
S. currucoides		+			++	0				
Myadestes townsendi		+			++					
SYLVIIDAE										
Polioptila caerulea					++					
Regulus calendula		+			++					
MOTACILLIDAE										
Anthus spinoletta				+	+	++			+	
A. spragueii				+	+	++				
BOMBYCILLIDAE										
Bombycilla cedrorum		++			+					
LANIIDAE										
Lanius ludovicianus					++		+			
VIREONIDAE										
Vireo atricapilla		+			++					
V. griseus		+			++					
V. bellii		+			++					
V. vicinior		+			++					
V. flavifrons		+			++					
V. solitarius		+			++					
V. altiloquus		+			++					

	Terrestrial Plants	Fruit	Nectar	Seeds	Terrestrial Invertebrates	Soil or Litter Invertebrates	Terrestrial Vertebrates	Aquatic Vertebrates	Aquatic Invertebrates	Aquatic Plants or Planton
V. olivaceus		+			++					
V. philadelphicus		+			++					
V. gilvus		+			++					
PARULIDAE										
Mniotilta varia		o			++					
Protonotaria citrea					++					
Limnothlypis swainsonii					++	+				
Helmitheros vermivorus					++	+				
Vermivora chrysoptera					++					
V. pinus					++					
V. bachmanii					++					
V. peregrina		+	+		++					
V. celata					++					
V. ruficapilla					++					
V. virginiae					++					
V. crissalis					++					
V. luciae					++					
Parula americana		o	o		++					
Peucedramus taeniatus					++					
Dendroica petechia		o			++					
D. magnolia					++					
D. tigrina		+	+		++					
D. caerulescens		o	o		++					
D. coronata		+	+	+	++					
D. nigrescens					++					
D. townsendi				o	++					
D. virens		+			++					
D. chrysoparia					++					
D. occidentalis					++					
D. cerulea					++					

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	Terrestrial Plants	Fruit	Nectar	Seeds	Terrestrial Invertebrates	Soil or Litter Invertebrates	Terrestrial Vertebrates	Aquatic Vertebrates	Aquatic Invertebrates	Aquatic Plants or Planton
D. fusca		o			++					
D. dominica					++					
D. graciae					++					
D. pensylvanica		o			++					
D. castanea		+			++					
D. striata		+			++					
D. pinus		+		+	++					
D. kirtlandii			o		++					
D. discolor		o			++					
D. palmarum					++	+				
Seiurus aurocapillus				+		++	o			
S. noveboracensis				o		++		o	+	
S. motacilla				o		++		o	+	
Oporornis formosus		o			++					
O. agilis		o			++					
O. philadelphia	+				++					
Geothlypis trichas		o			++					
Icteria virens		+			++					
Cardellina rubrifrons					++					
Wilsonia citrina					++					
W. pusilla		+			++					
W. canadensis					++					
Setophaga ruticilla		o			++					
Myioborus pictus					++					
ICTERIDAE										
Dolichonyx oryzivorus				++	++					
Sturnella magna				+	++	+				
S. neglecta				+	++	+				
Xanthocephalus xanthocephalus				+	++				+	
Agelaius phoeniceus		o		+	++				+	

	Terrestrial Plants	Fruit	Nectar	Seeds	Terrestrial Invertebrates	Soil or Litter Invertebrates	Terrestrial Vertebrates	Aquatic Vertebrates	Aquatic Invertebrates	Aquatic Plants or Planton
Icterus spurius	+	+	+		+					
I. graduacauda		+	+		+					
I. cucullatus		+	+		+					
I. parisorum		+	+		+					
I. galbula		+	+		+					
Euphagus cyanocephalus		+		+	+	+				
Molothrus ater		+		+	+					
M. aeneus		+		+	+					
THRAUPIDAE										
Piranga ludoviciana		+			+					
P. olivacea		+			+					
P. flava		+		+	+					
P. rubra		+			+					
FRINGILLIDAE										
Pheucticus ludovicianus		+		+	+					
P. melanocephalus		+		+	+					
Guiraca caerulea		+			+					
Passerina cyanea				+	+					
P. amoena				+	+					
P. versicolor				+	+					
P. ciris				+	+					
Spiza americana				+	+					
Carduelis psaltria				+						
C. tristis				+	+					
Pipilo chlorurus					+					
P. erythrophthalmus		+		+	+	+				
Calamospiza melanocorys				+	+	+				
Passerculus sandwichensis				+	+	+				
Ammodramus savannarum				+	+	+				

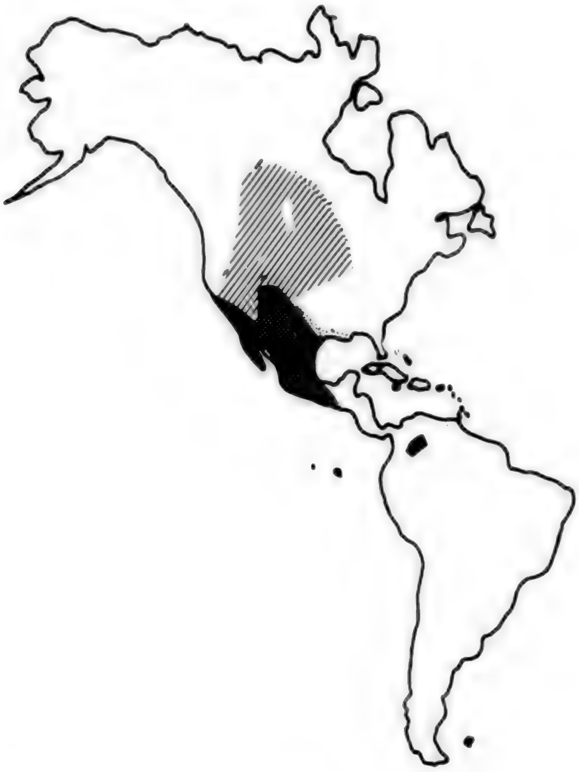
	Terrestrial Plants	Fruit	Nectar	Seeds	Terrestrial Invertebrates	Soil or Litter Invertebrates	Terrestrial Vertebrates	Aquatic Vertebrates	Aquatic Invertebrates	Aquatic Plants or Planton
Pooecetes gramineus				+	+	+				
Chondestes grammacus				+	+	+				
Aimophila ruficeps				+	+	+				
A. botterii				+	+	+				
Spizella passerina				+	+	+				
S. breweri				+	+	+				
S. pallida				+	+					
S. atrogularis				+	+	+				
Zonotrichia leucophrys				+	+	+				
Melospiza lincolnii				+	+	+				
M. georgiana				+	+					

APPENDIX 4

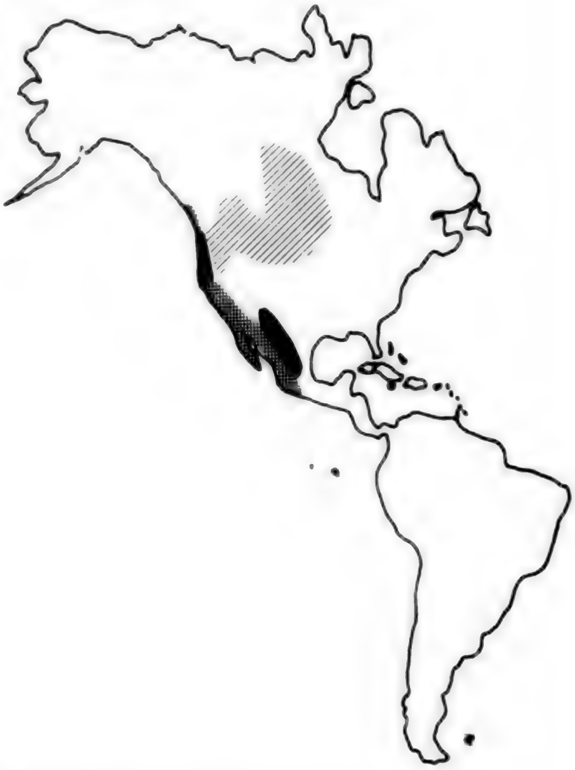
Distribution Maps of Nearctic Migrants in the Western Hemisphere

These maps were compiled from regional literature, checklists and research reports. Hundreds of hours have been spent compiling them, yet they represent only gross estimates of the species' range in many cases. For a number of species, the maps represent the first attempt at a pictoral representation of the entire Western Hemisphere range. We hope that they will serve as fair approximations of species' distribution which will be corrected and refined by future research. The maps show where a species occurs as a breeding bird (▨), wintering bird (▰) or permanent resident (▰). They do not show areas where the bird may occur on migration.

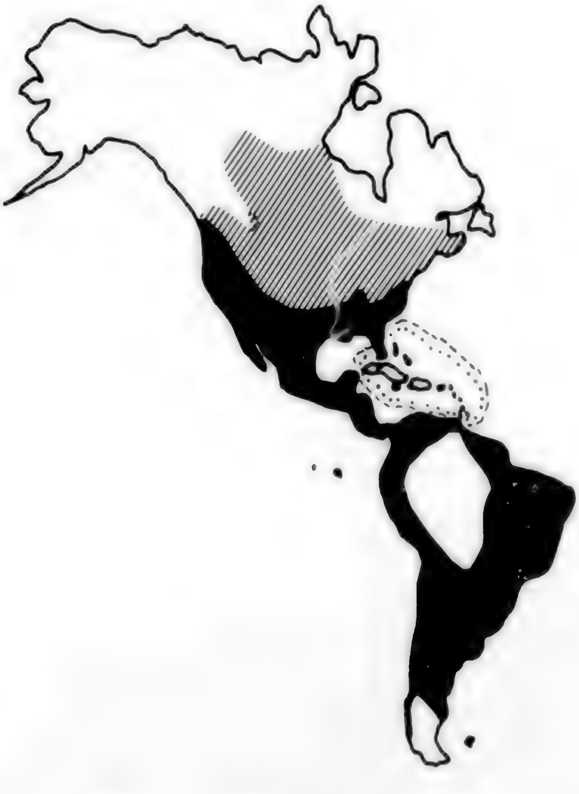
Podiceps nigricollis
Eared Grebe



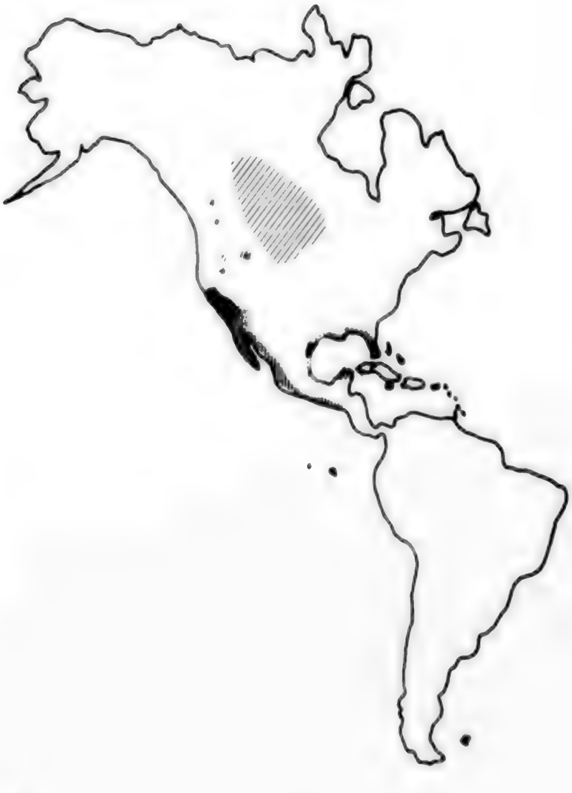
Aechmophorus occidentalis
Western Grebe



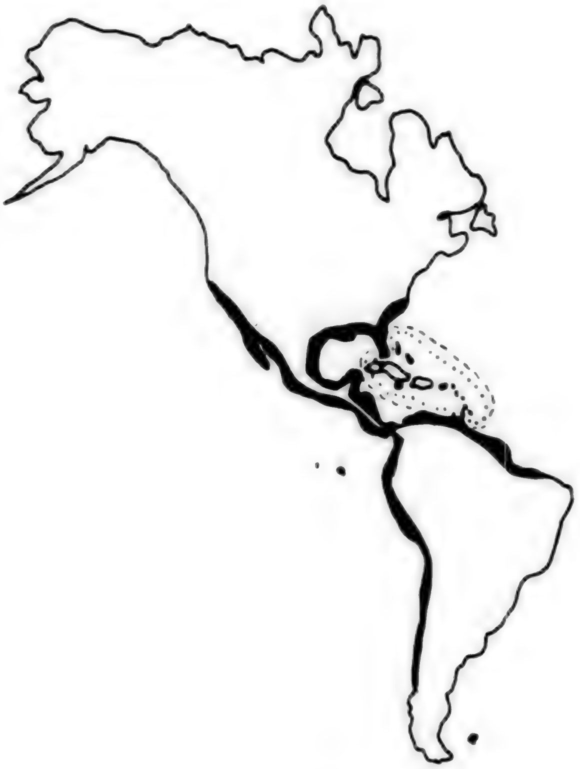
Podilymbus podiceps
Pied-billed Grebe



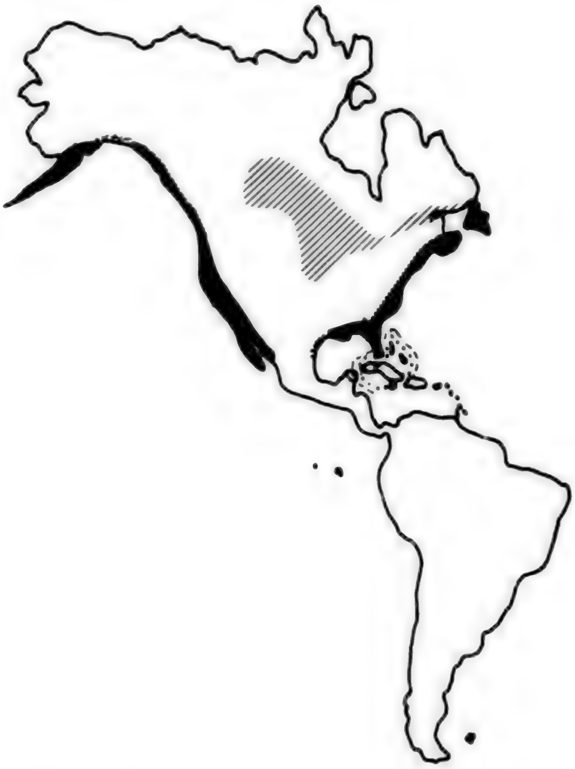
Pelecanus erythrorhynchos
White Pelican



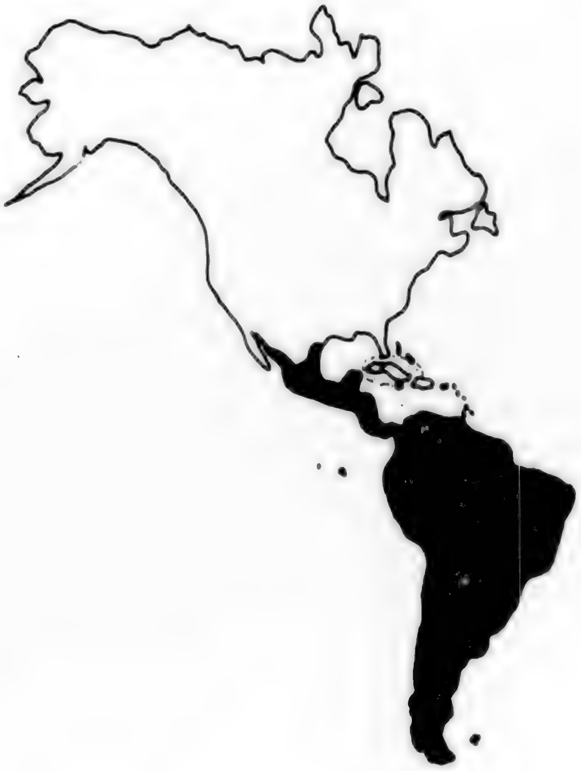
Pelecanus occidentalis
Brown Pelican



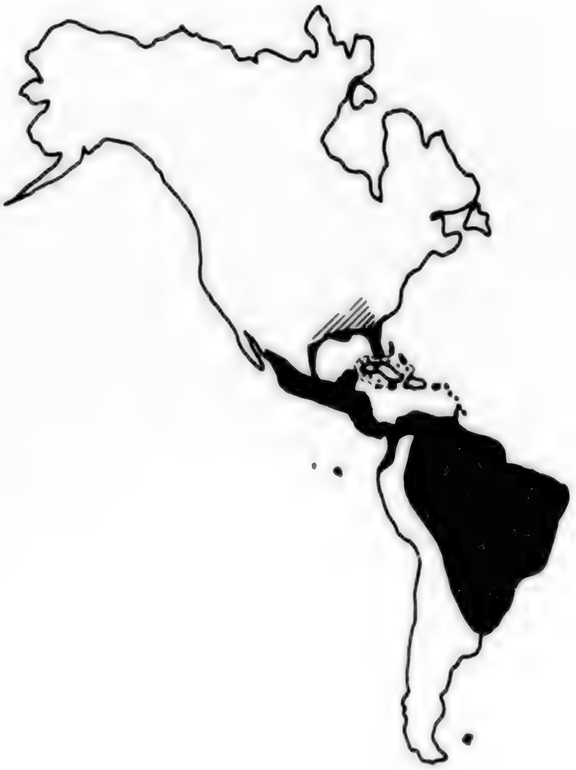
Phalacrocorax auritus
Double-crested Cormorant



Phalacrocorax olivaceus
Olivaceous Cormorant



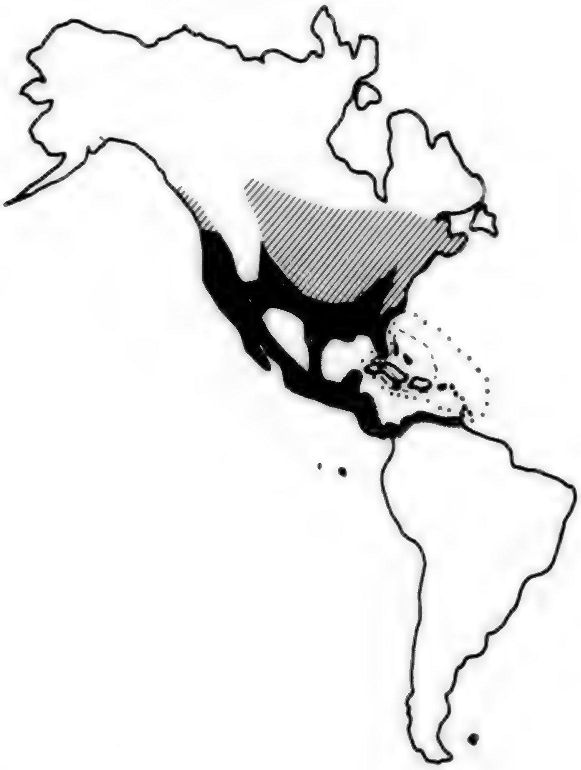
Anhinga anhinga
Anhinga



BEST DOC

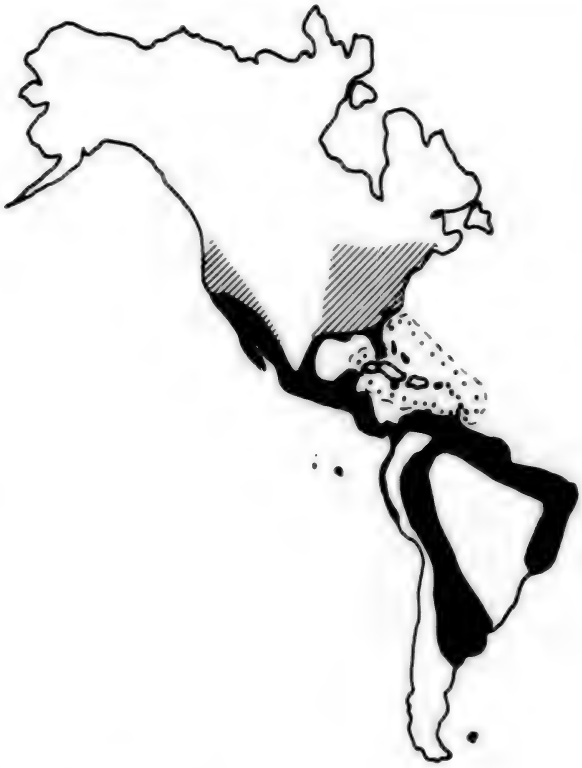
Ardea herodias

Great Blue Heron



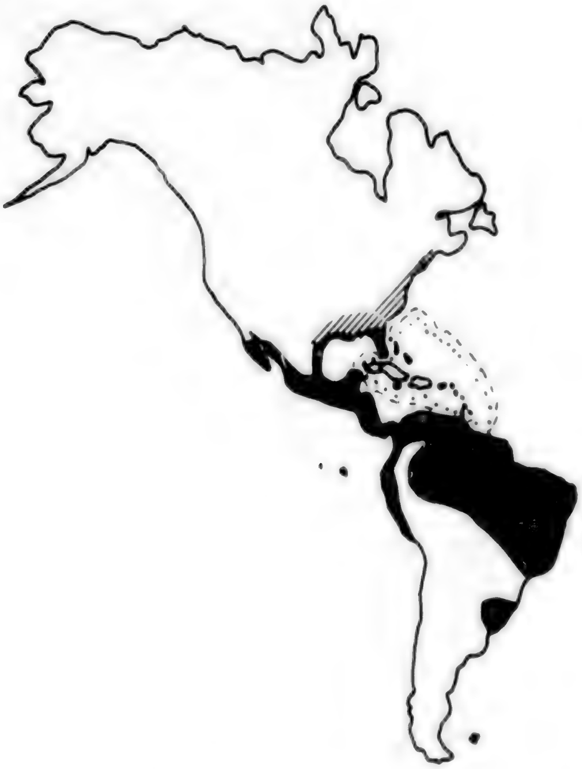
Butorides striatus - includes virescens

Green Heron



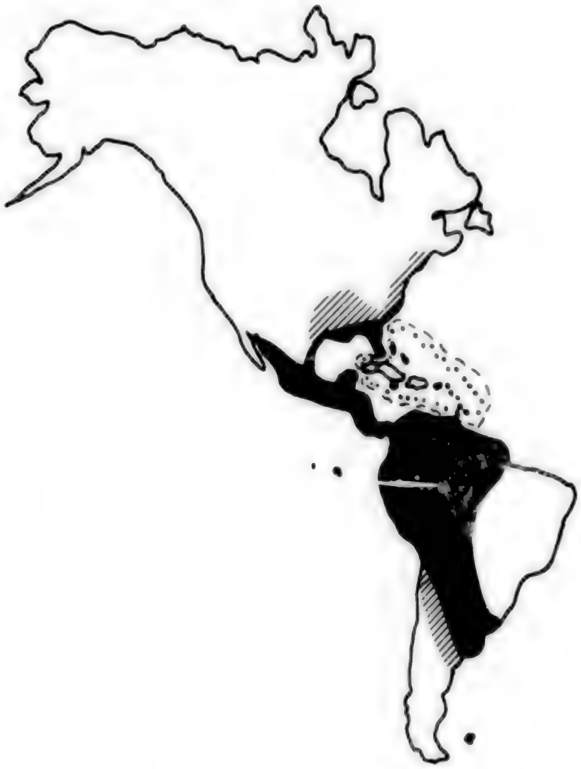
Florida caerulea

Little Blue Heron



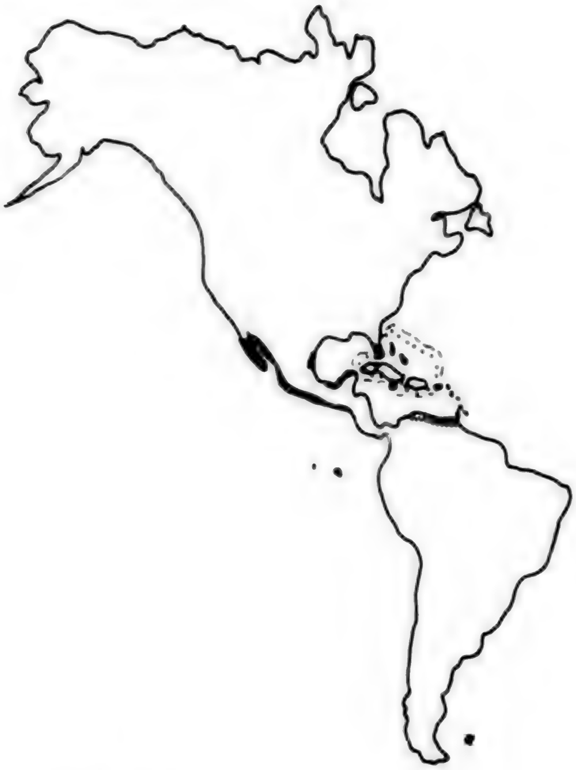
Bubulcus ibis

Cattle Egret



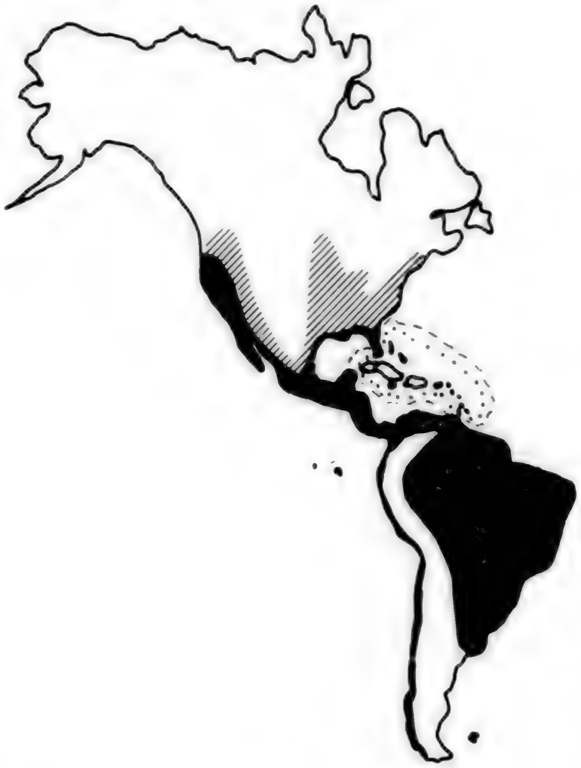
Dichromanassa rufescens

Reddish Egret



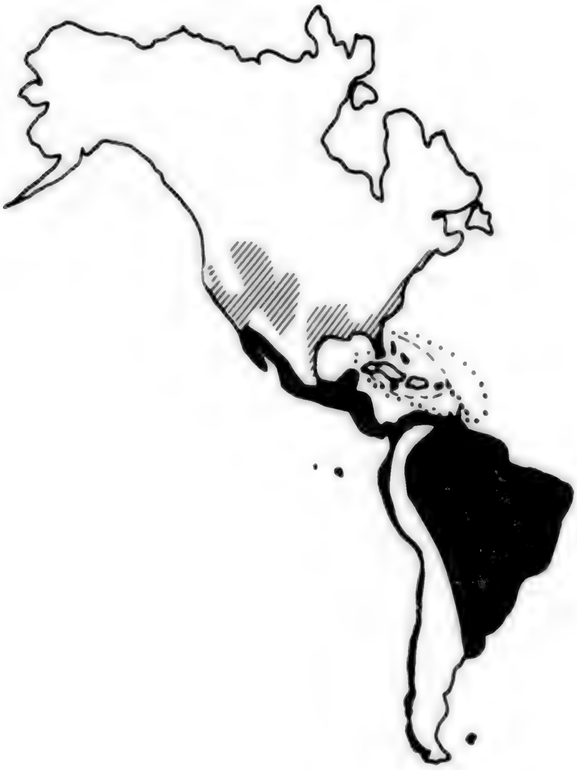
Casmerodius albus

Great Egret



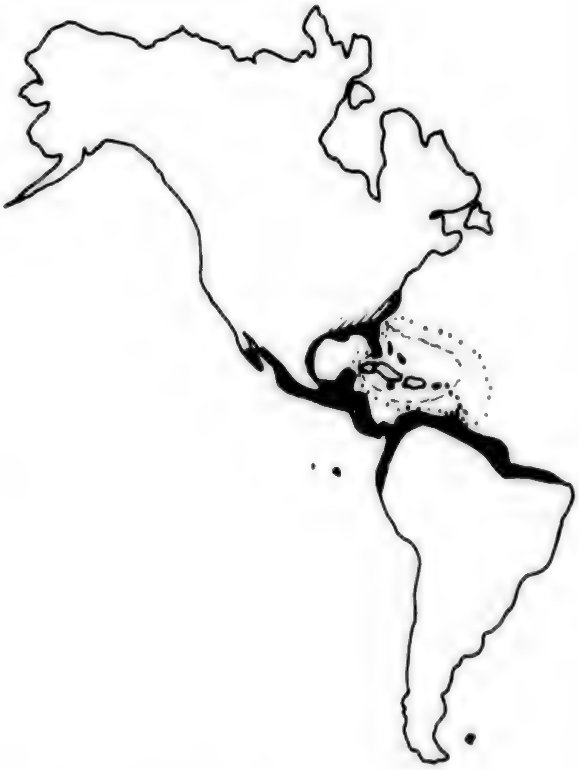
Egretta thula

Snowy Egret

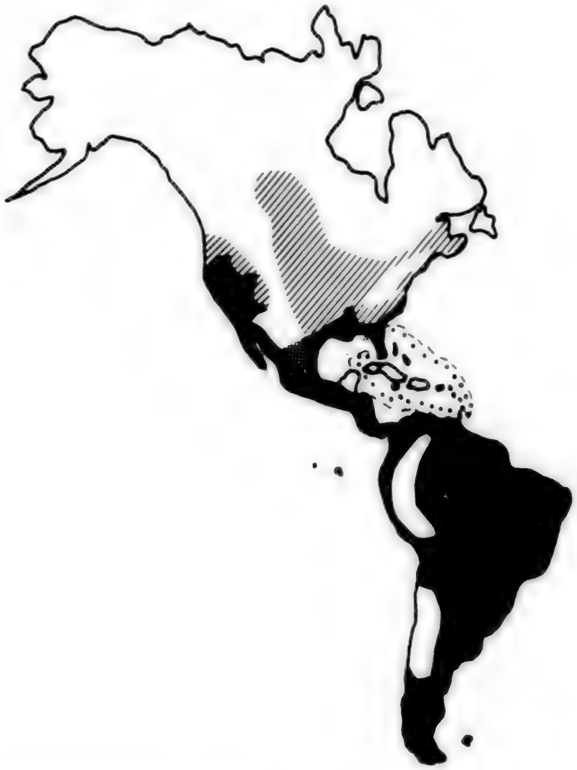


Hydranassa tricolor

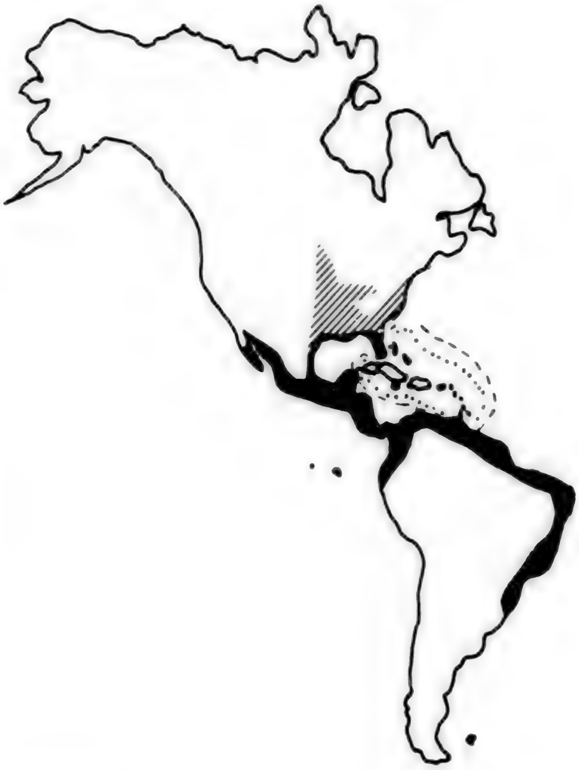
Louisiana Heron



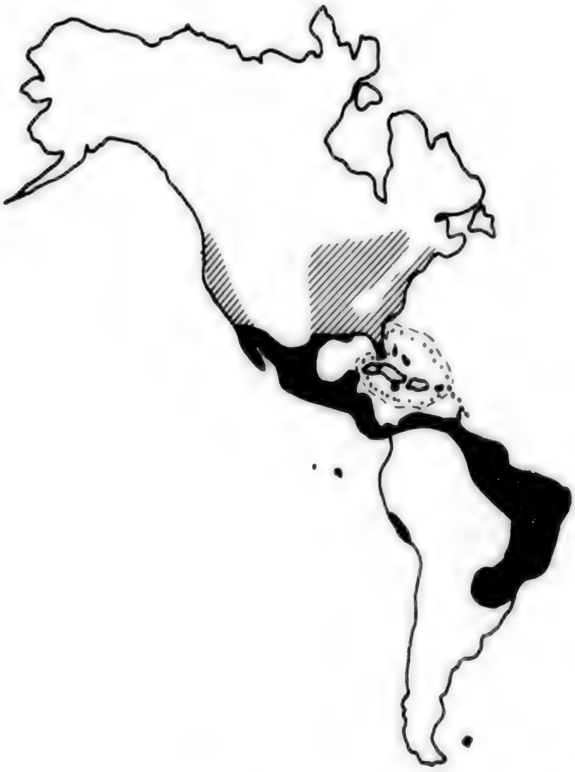
Nycticorax nycticorax
Black-crowned Night Heron



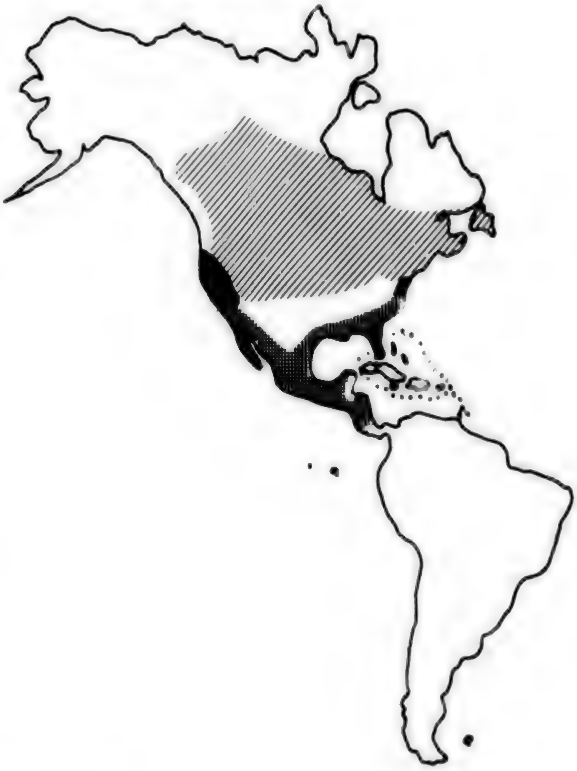
Nyctanassa violacea
Yellow-crowned Night Heron



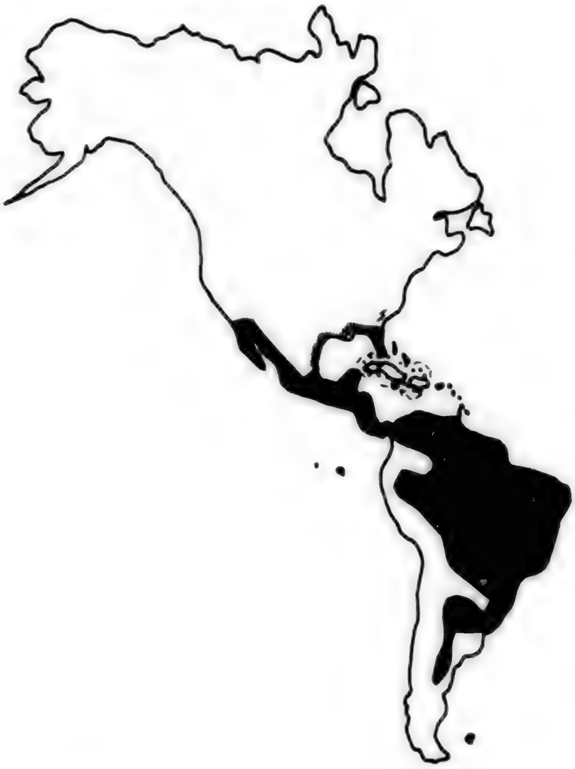
Ixobrychus exilis
Least Bitten



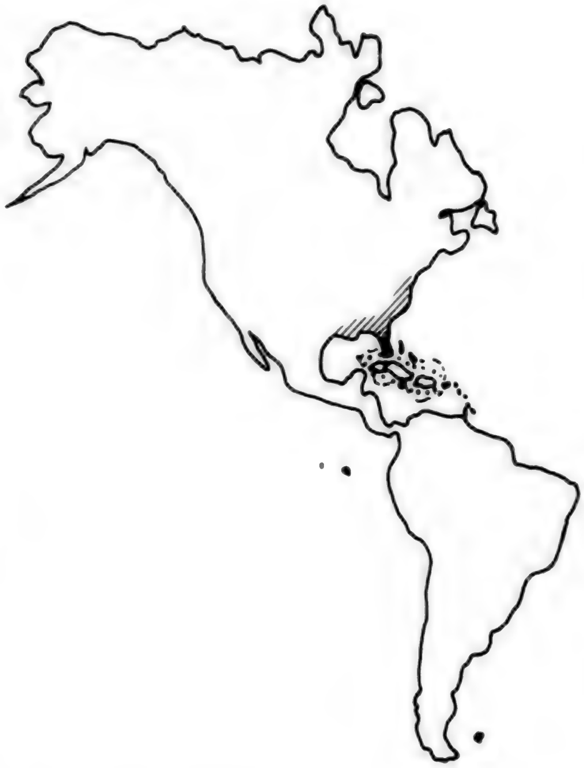
Botaurus lentiginosus
American Bittern



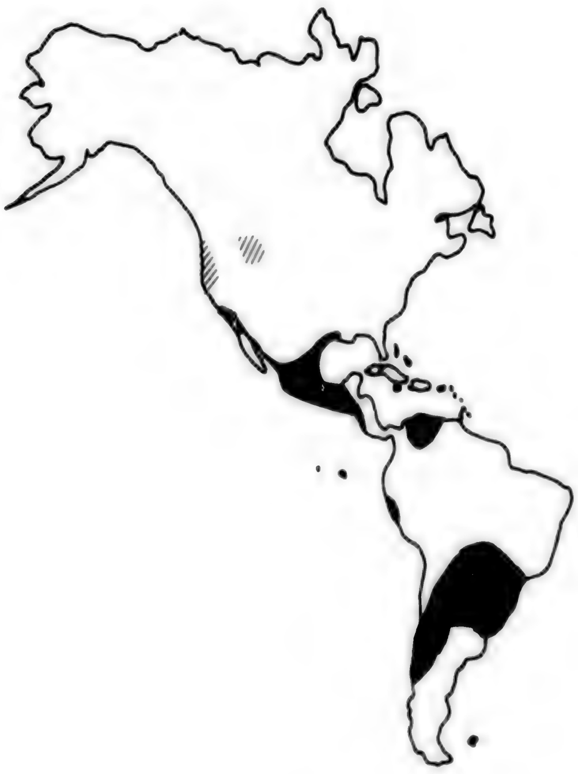
Mycteria americana
Wood Stork



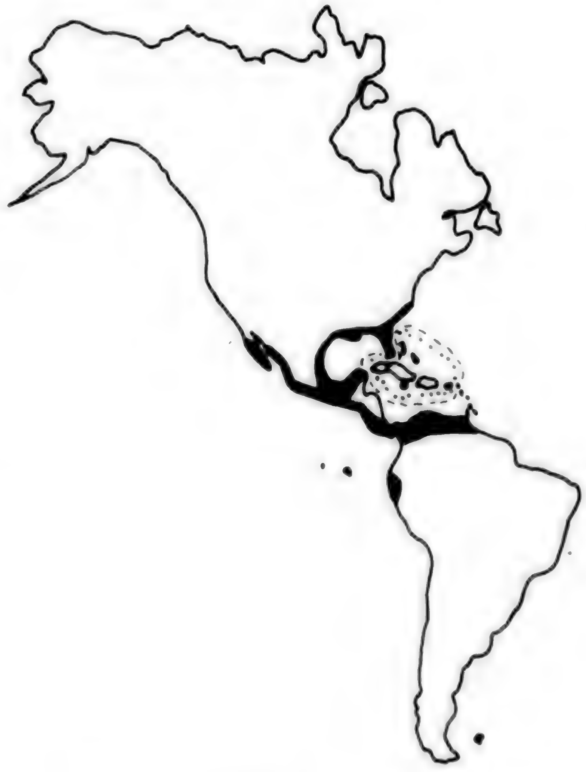
Plegadis falcinellus
Glossy Ibis



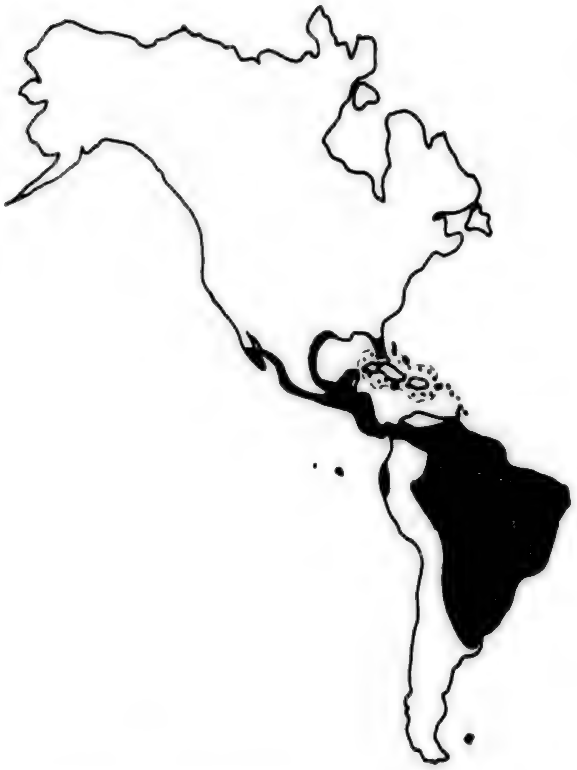
Plegadis chihi
White-faced Ibis



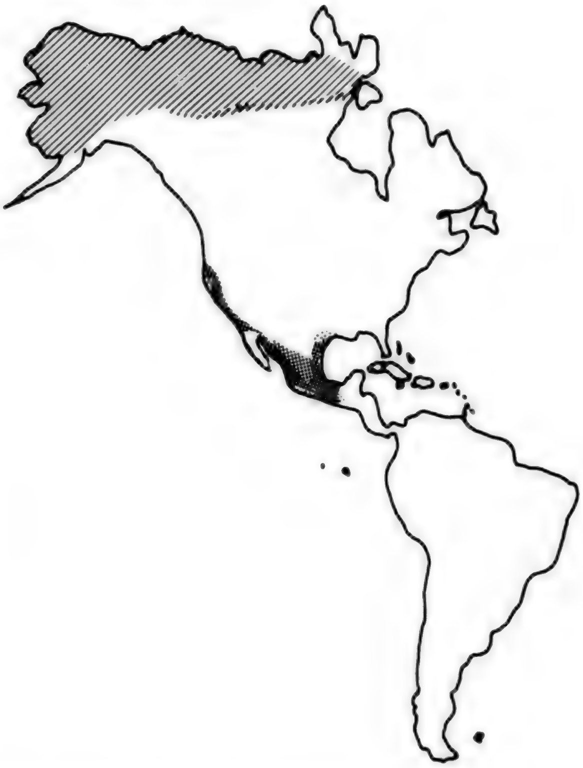
Eudocimus albus
White Ibis



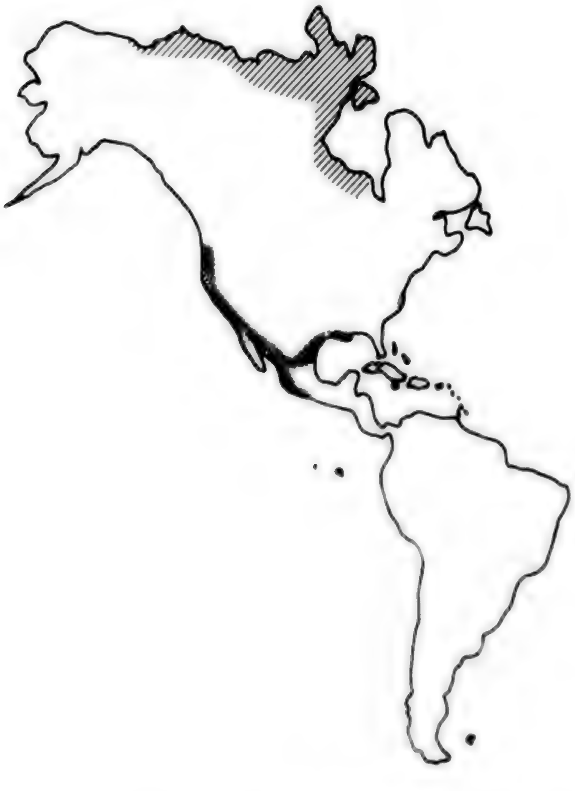
Ajaia ajaja
Roseate Spoonbill



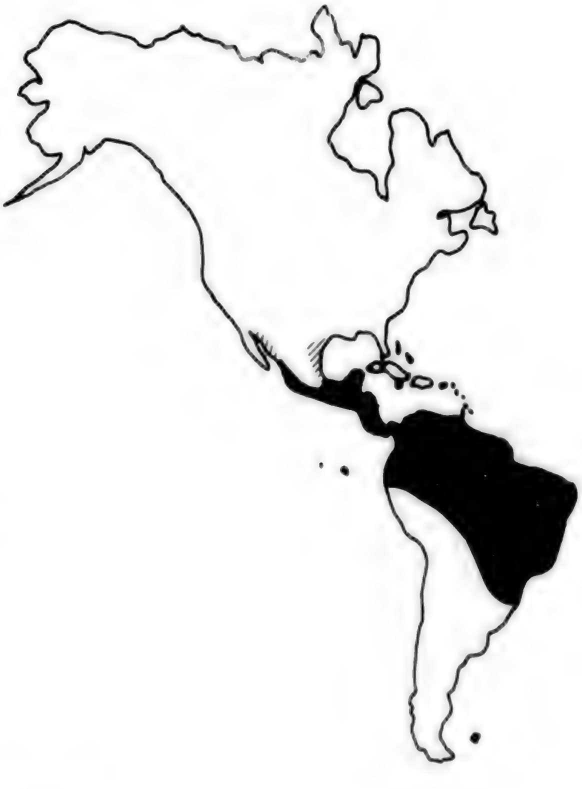
Anser albifrons
White-fronted Goose



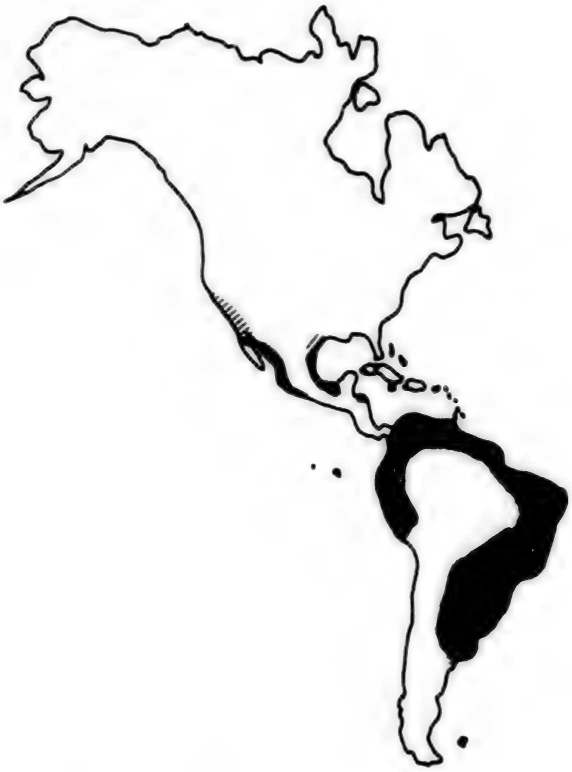
Chen caerulescens
Blue Goose



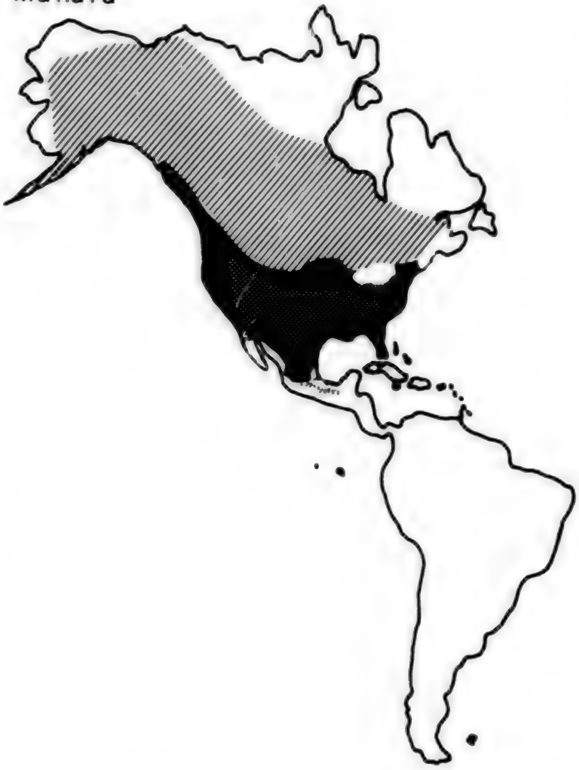
Dendrocygna autumnalis
Black-bellied Whistling-Duck



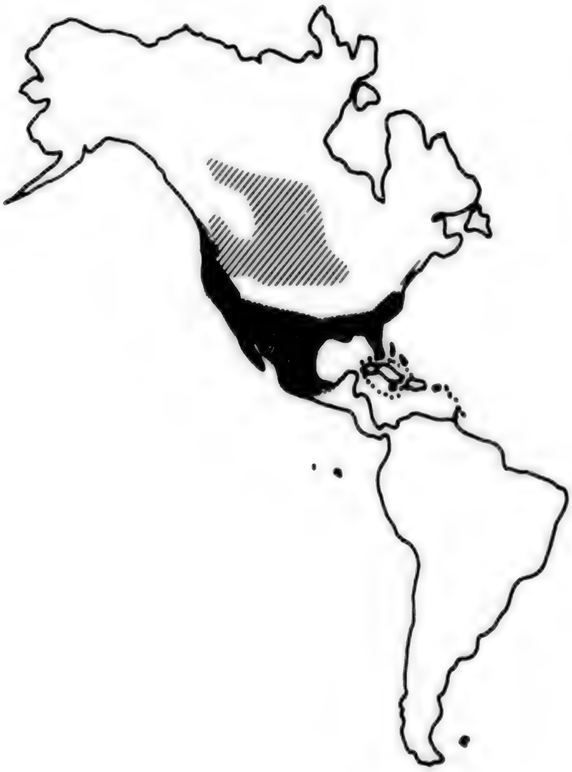
Dendrocygna bicolor
Fulvous Whistling-Duck



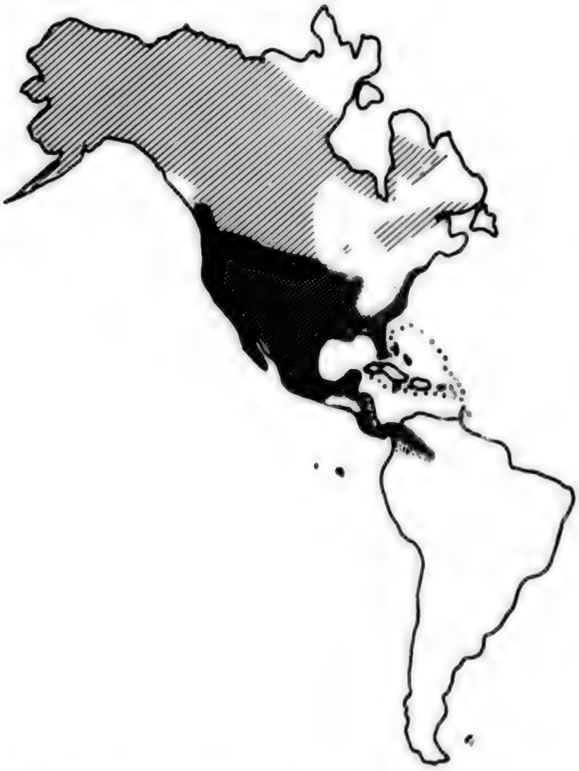
Anas platyrhynchos - includes diazi, fulvigula
Mallard



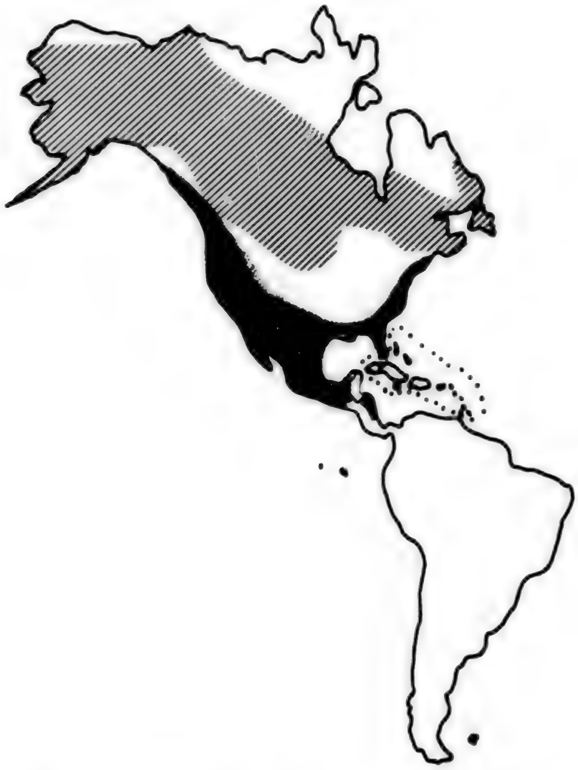
Anas strepera
Gadwall



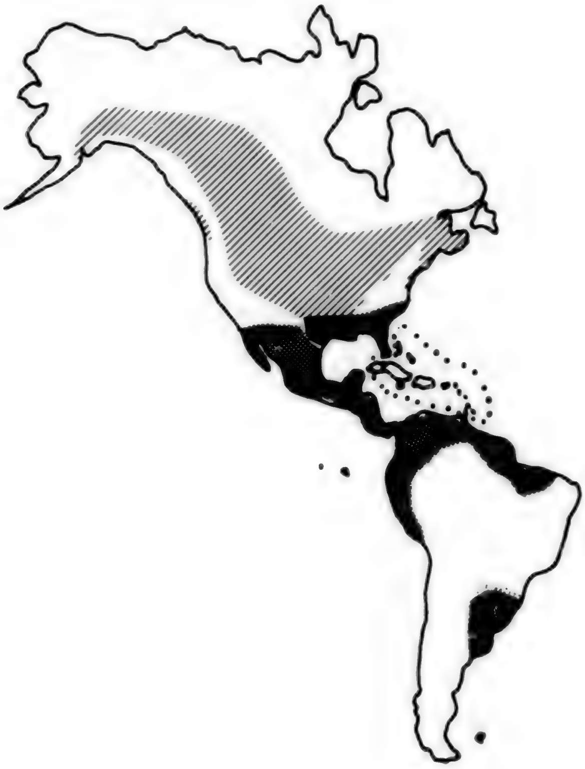
Anas acuta
Pintail



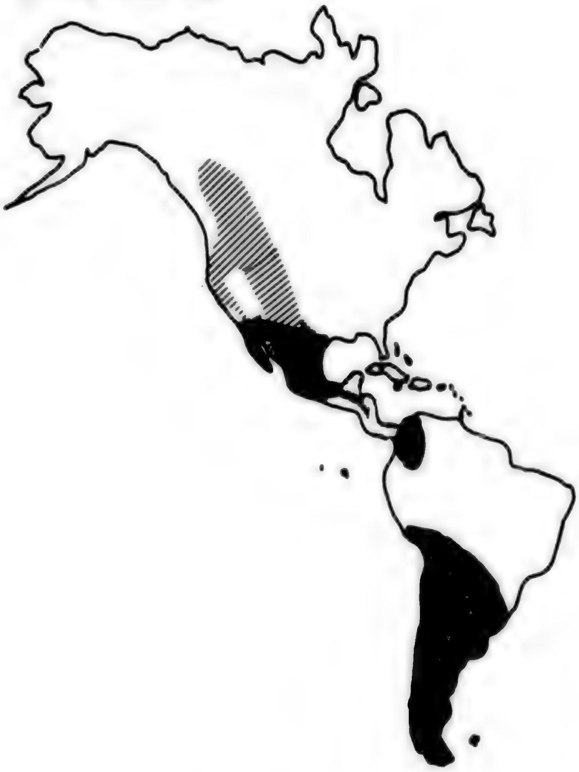
Anas crecca
Common Teal



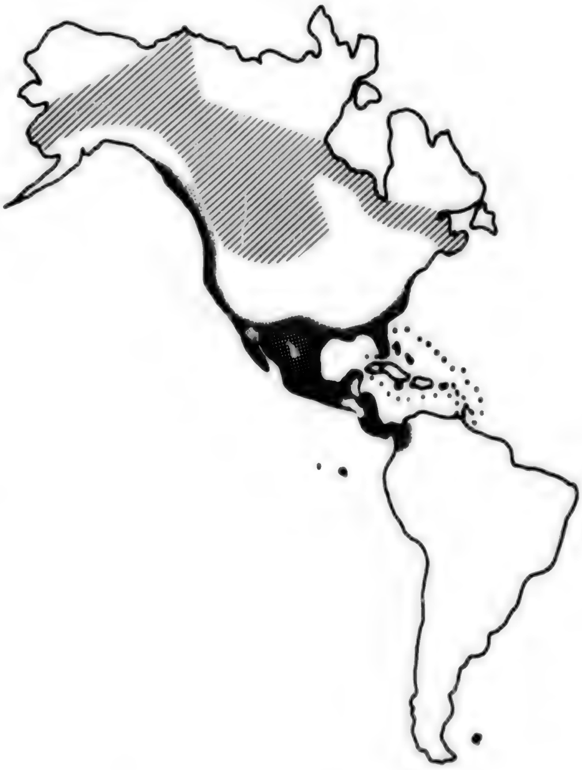
Anas discors - may breed in Cuba (585)
Blue-winged Teal



Anas cyanoptera - few records in Central America south of Mexico
Cinnamon Teal

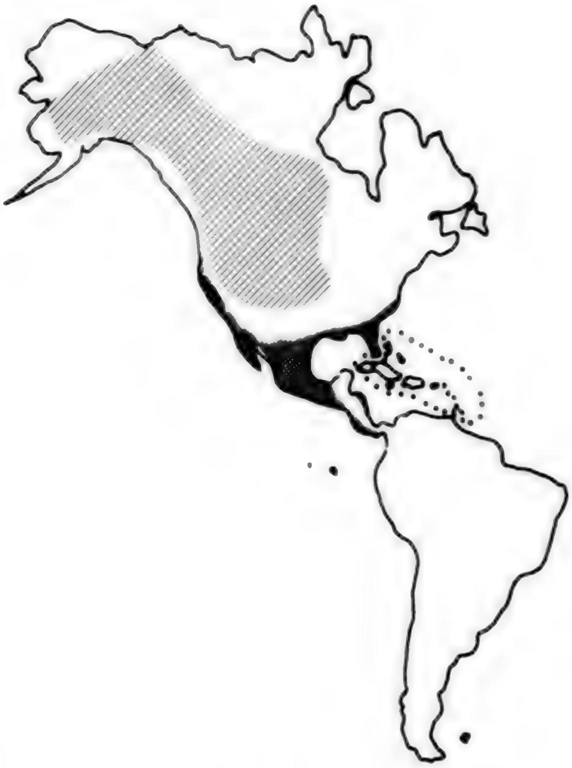


Anas americana
American Widgeon



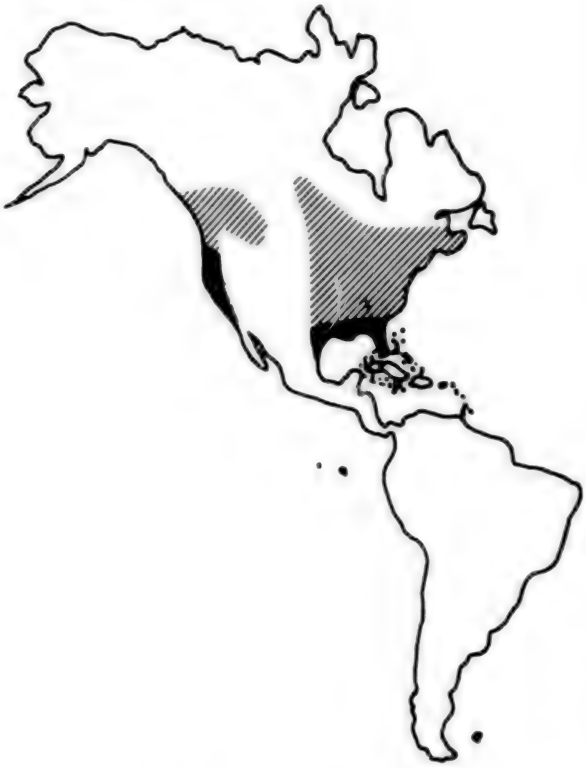
Anas clypeata

Northern Shoveler



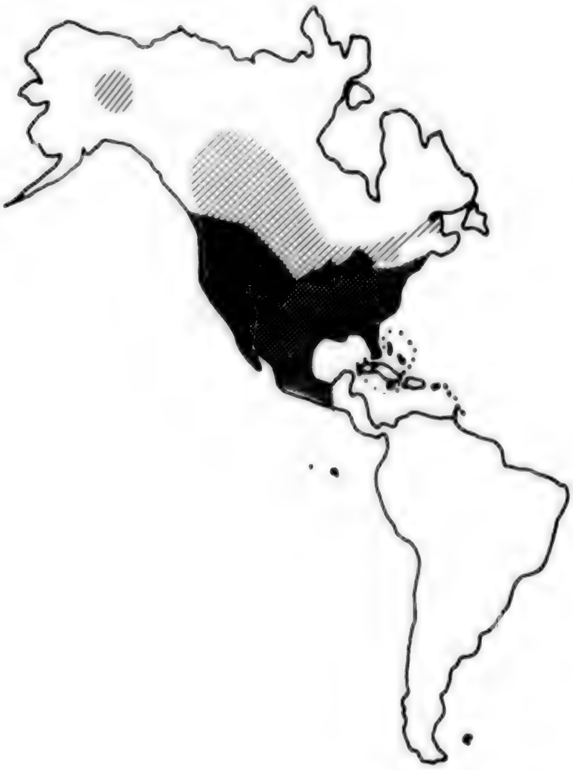
Aix sponsa

Wood Duck



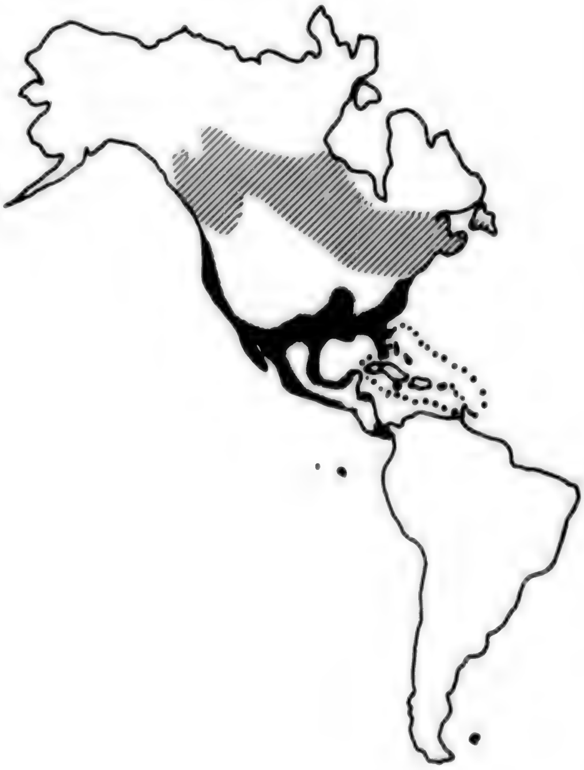
Aythya americana

Redhead

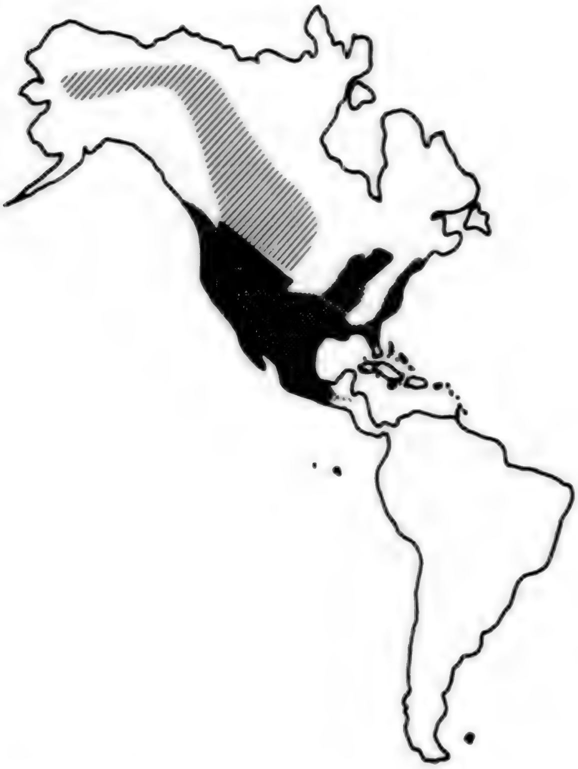


Aythya collaris

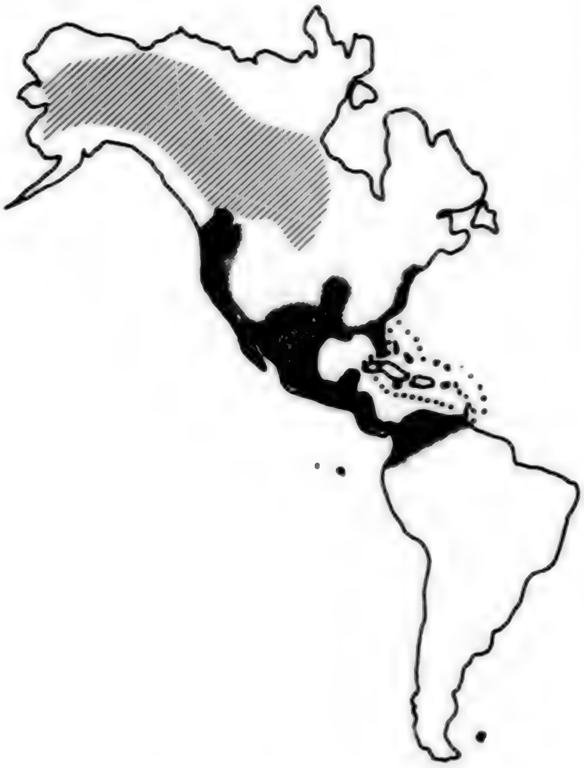
Ring-necked Duck



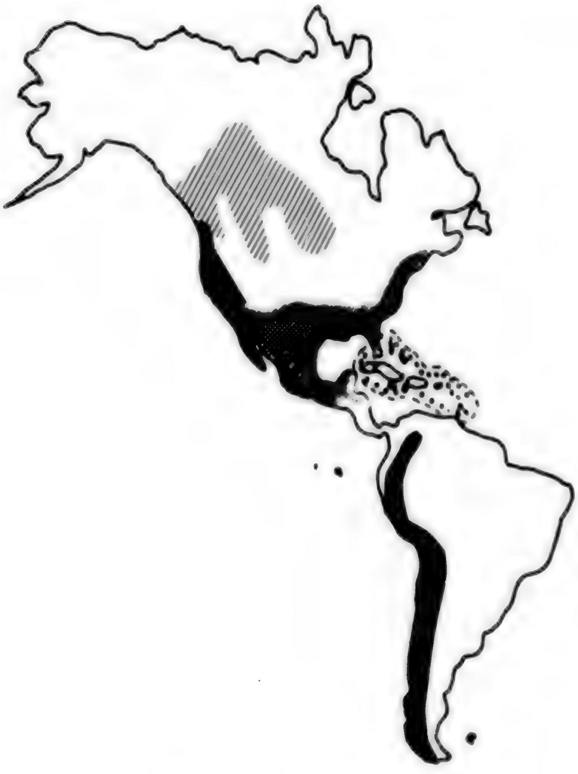
Aythya valisineria
Canvasback



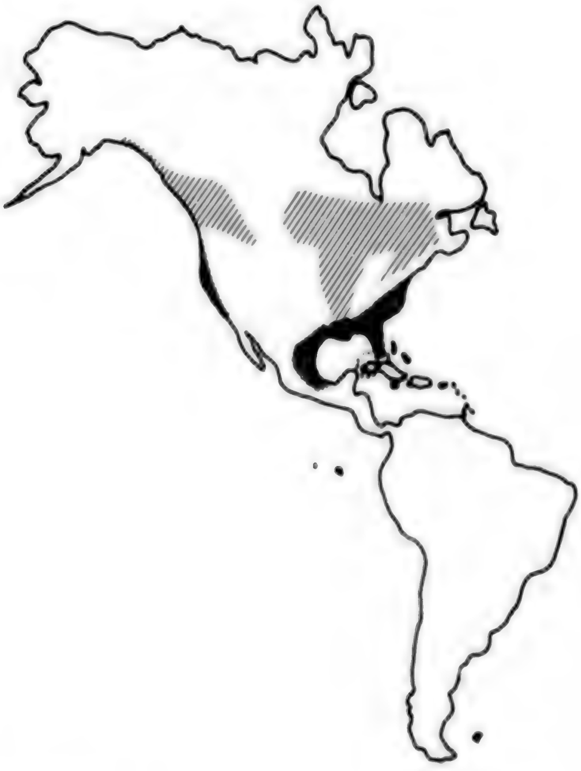
Aythya affinis
Lesser Scaup



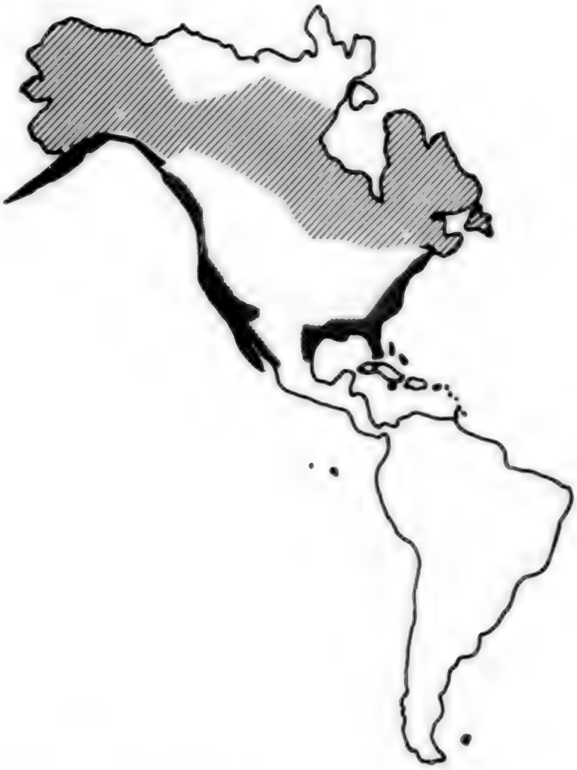
Oxyura jamaicensis - includes *ferruginea*
Ruddy Duck



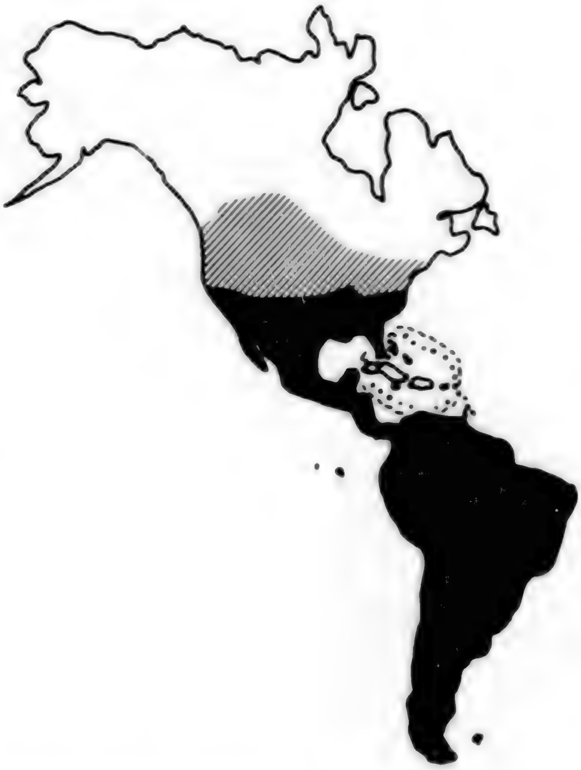
Lophodytes cucullatus
Hooded Merganser



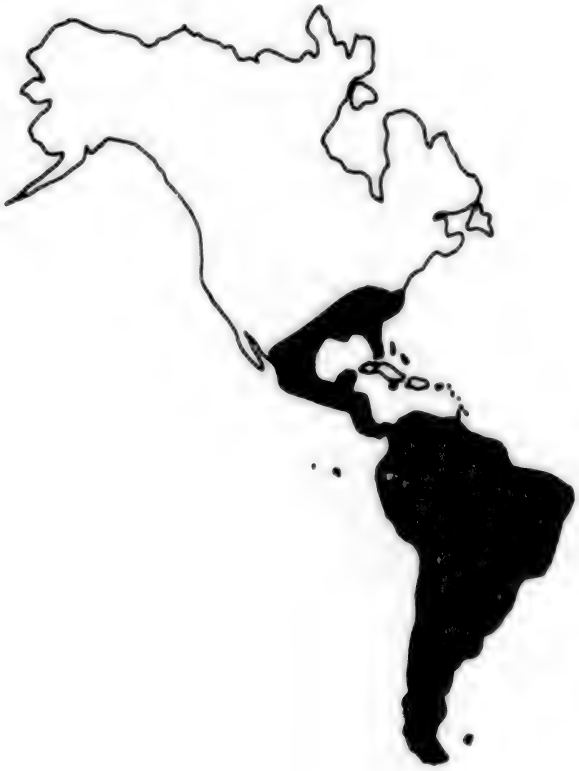
Mergus serrator
Red-breasted Merganser



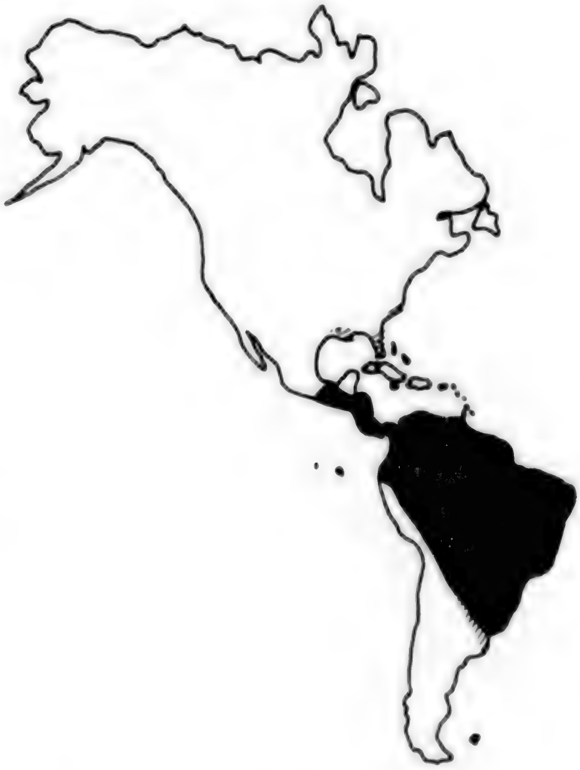
Cathartes aura
Turkey Vulture



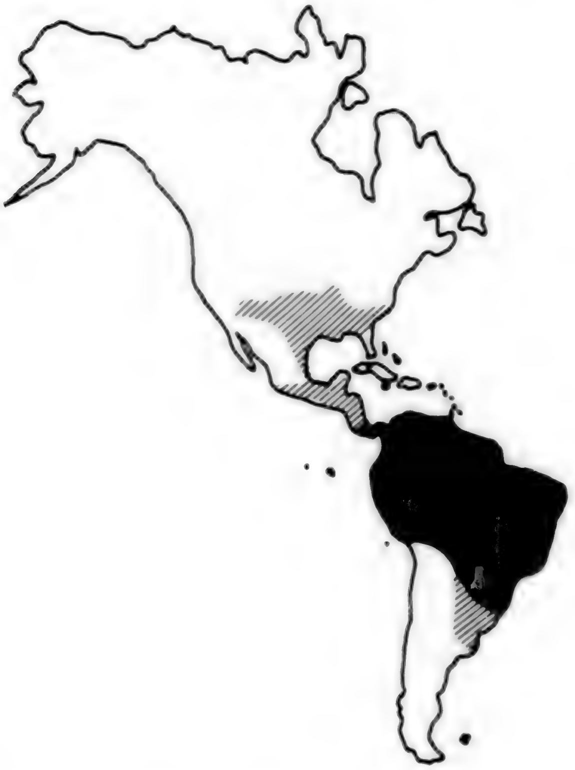
Coragyps atratus
Black Vulture



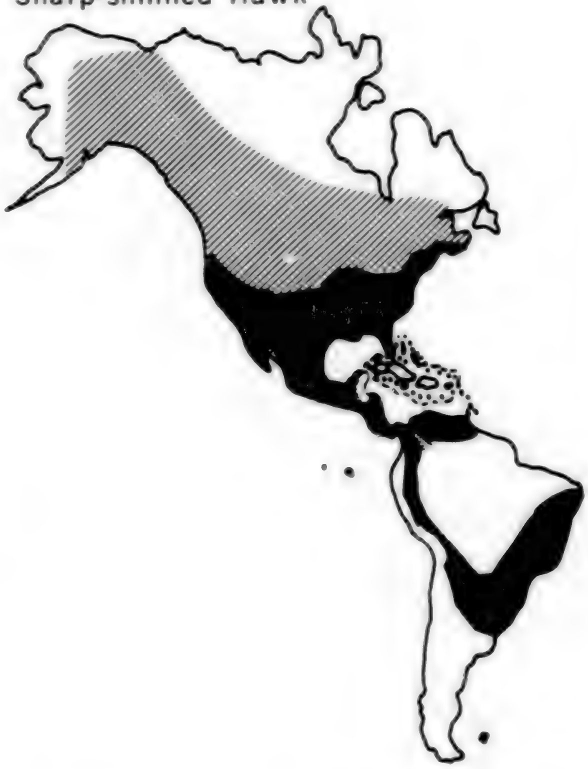
Elanoides forficatus
Swallow-tailed Kite



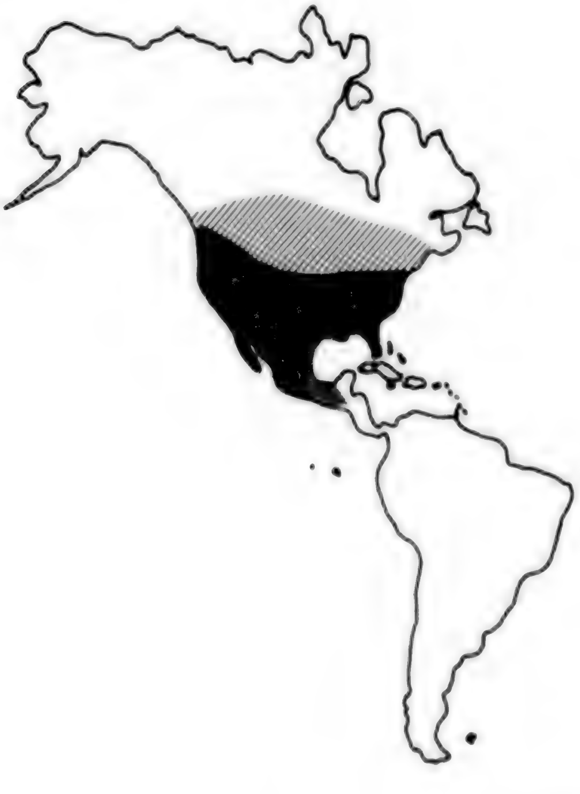
Ictinia mississippiensis - includes plumbea
Mississippi Kite



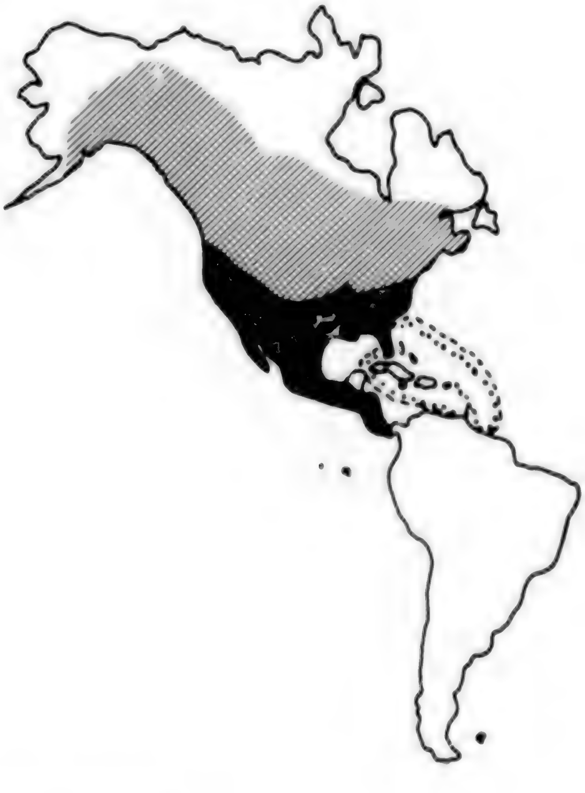
Accipiter striatus - includes erythrocnemius
Sharp-shinned Hawk



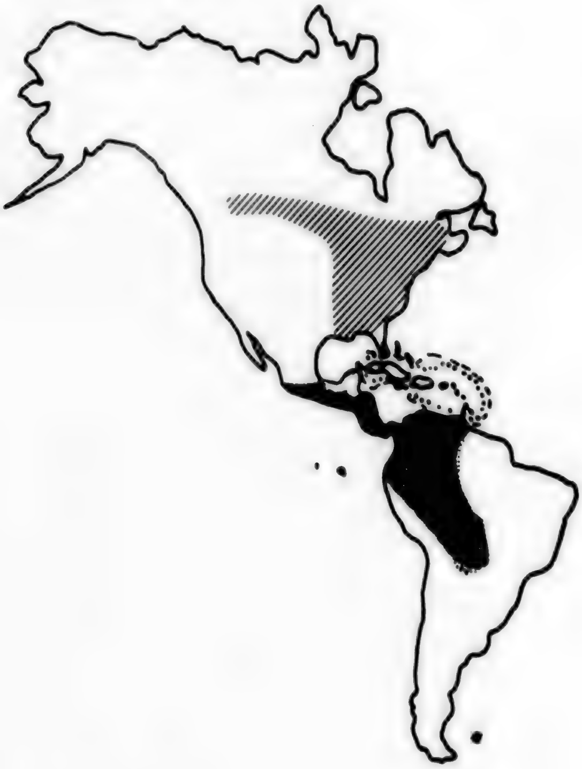
Accipiter cooperii
Cooper's Hawk



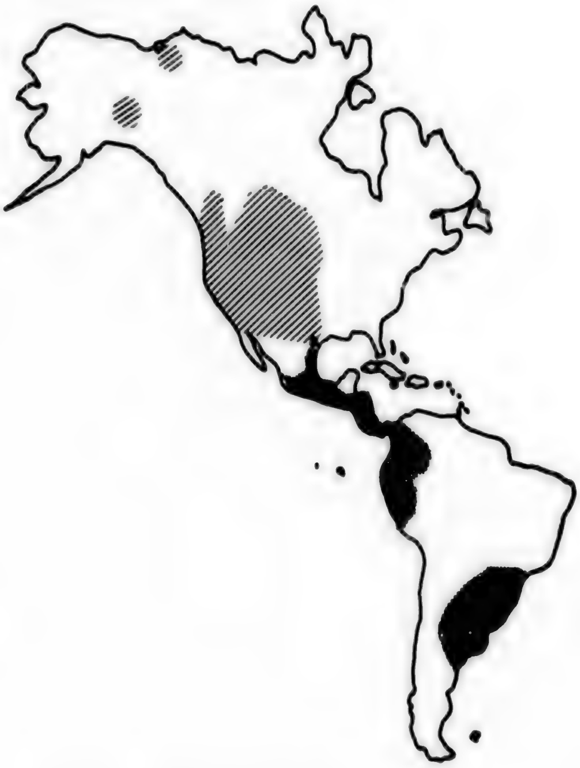
Buteo jamaicensis
Red-tailed Hawk



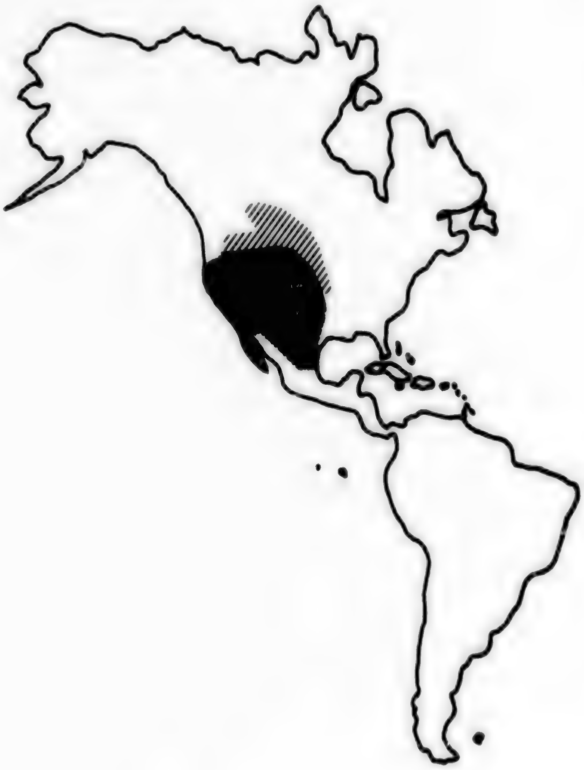
Buteo platypterus
Broad-winged Hawk



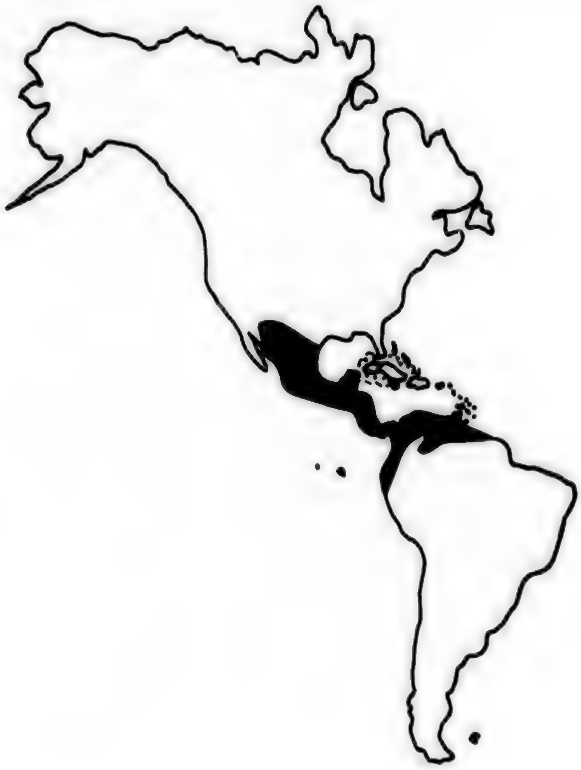
Buteo swainsoni
Swainson's Hawk



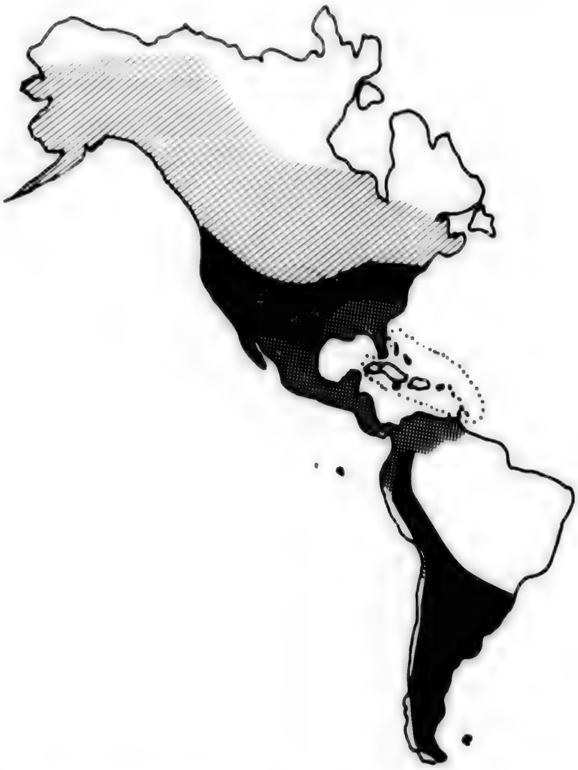
Buteo regalis
Ferruginous Hawk



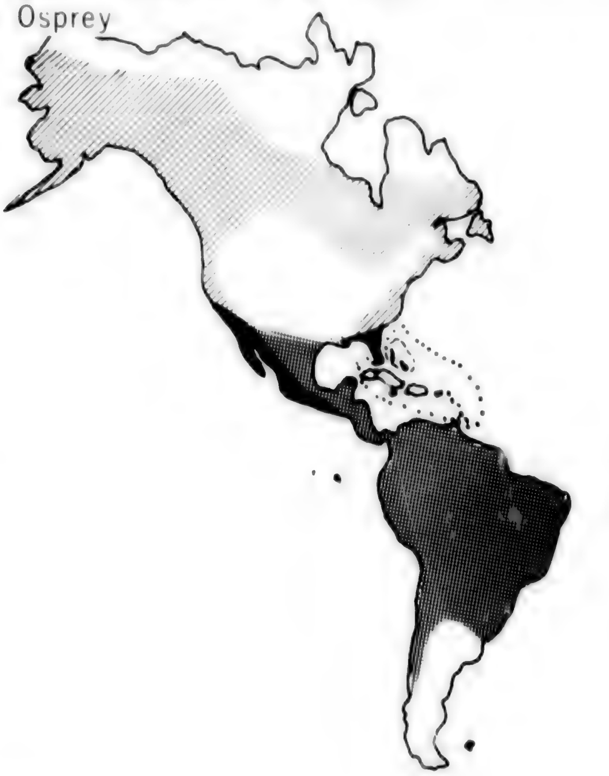
Buteogallus anthracinus
Black Hawk



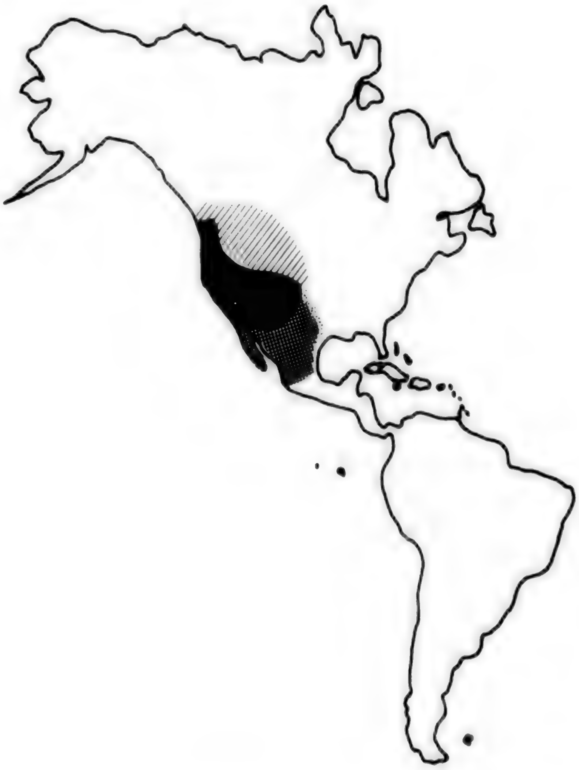
Circus cyaneus - includes cinereus
Marsh Hawk



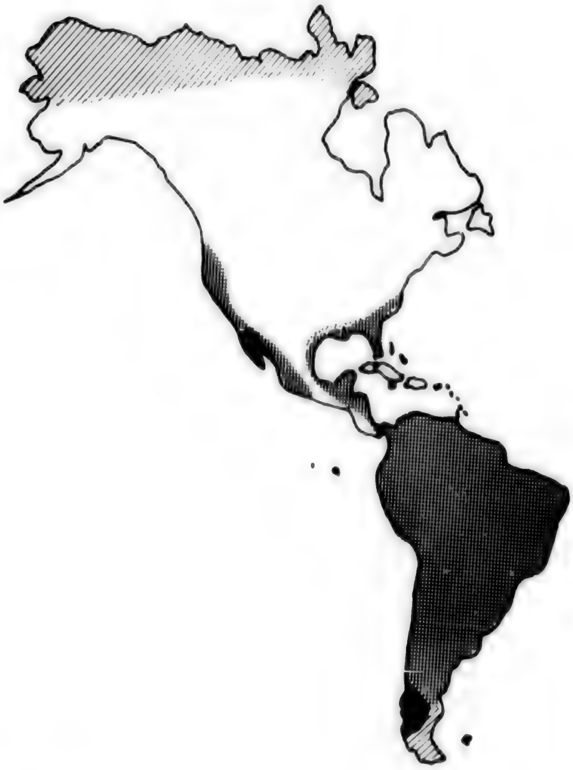
Pandion haliaetus - may breed on the Caribbean coastal islands of Central and South America (1478 , 161)
Osprey



Falco mexicanus
Prairie Falcon

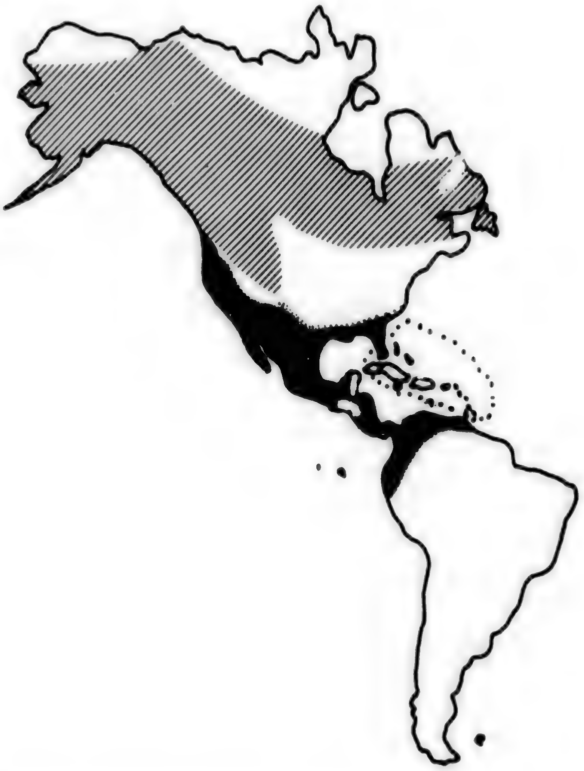


Falco peregrinus
Peregrine Falcon



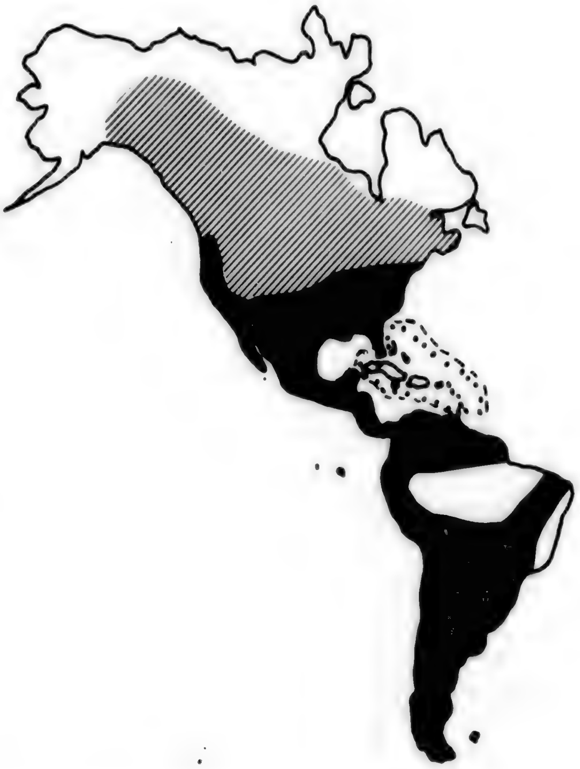
Falco columbarius

Merlin



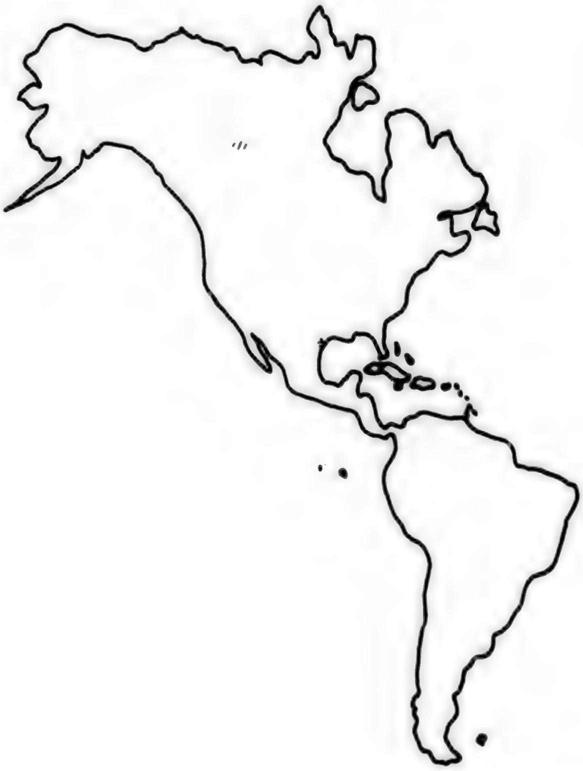
Falco sparverius

American Kestrel



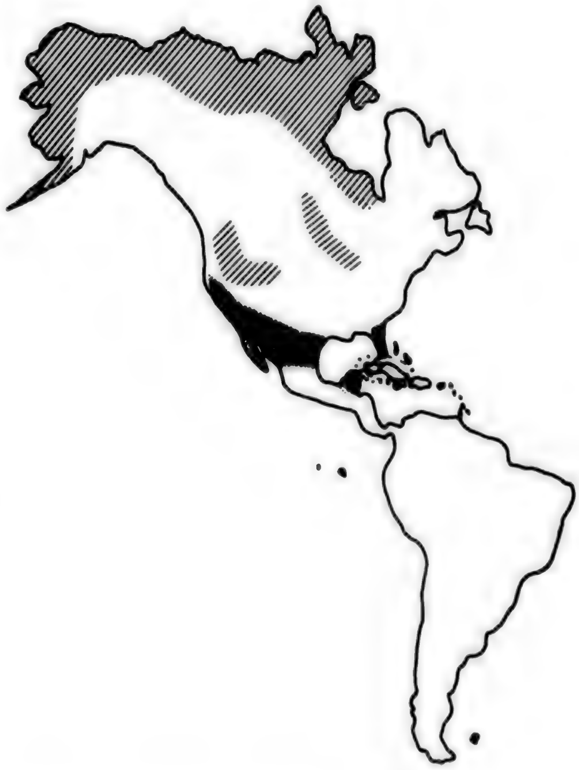
Grus americana - near extinction

Whooping Crane



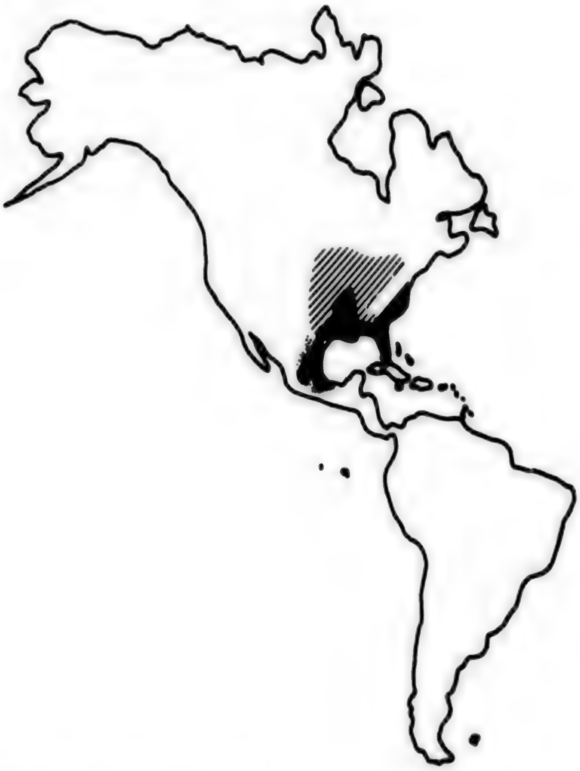
Grus canadensis

Sandhill Crane



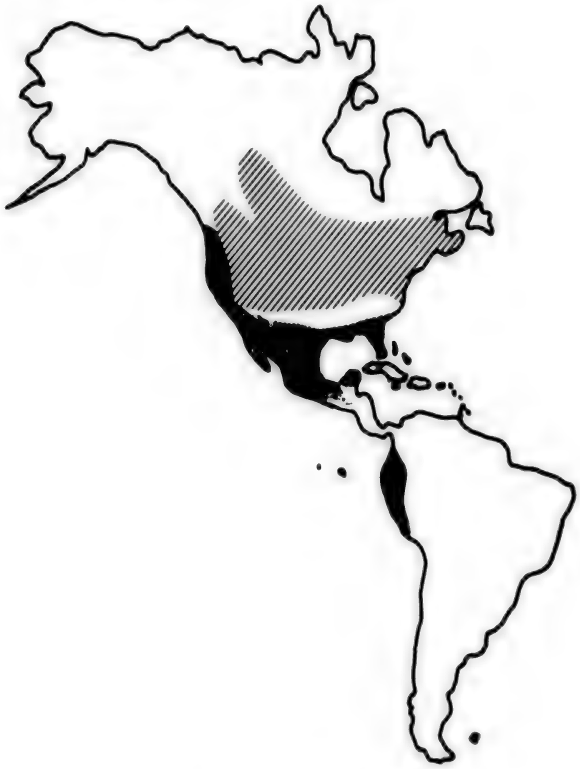
Rallus elegans

King Rail



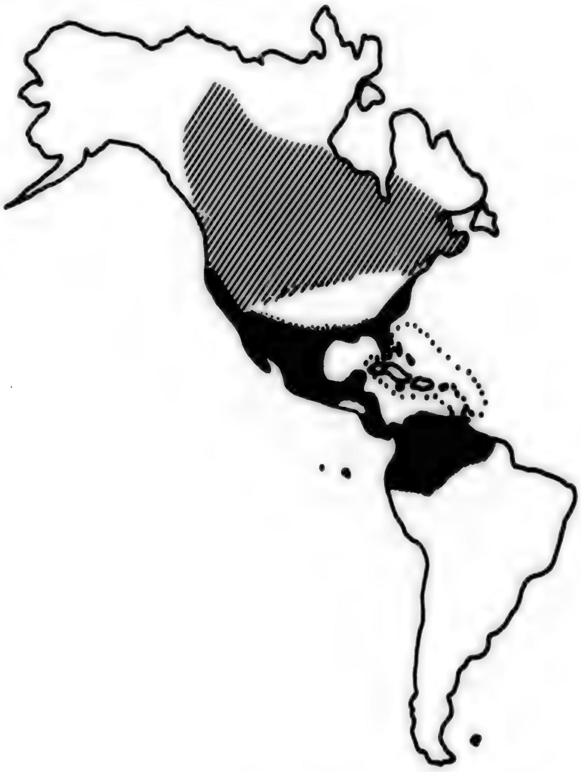
Rallus limicola

Virginia Rail



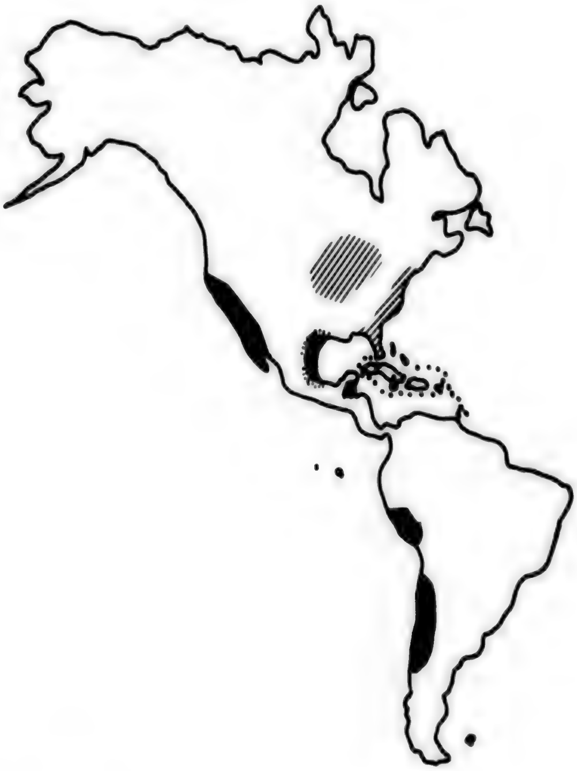
Porzana carolina

Sora



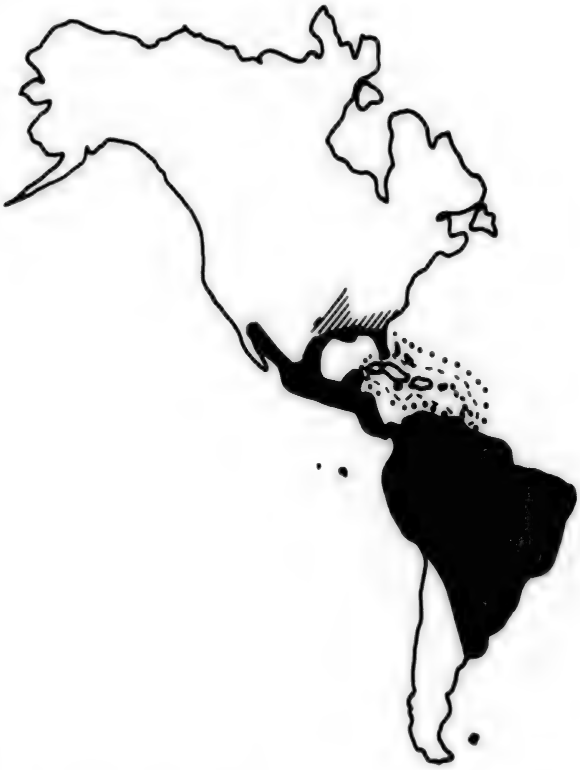
Laterallus jamaicensis

Black Rail



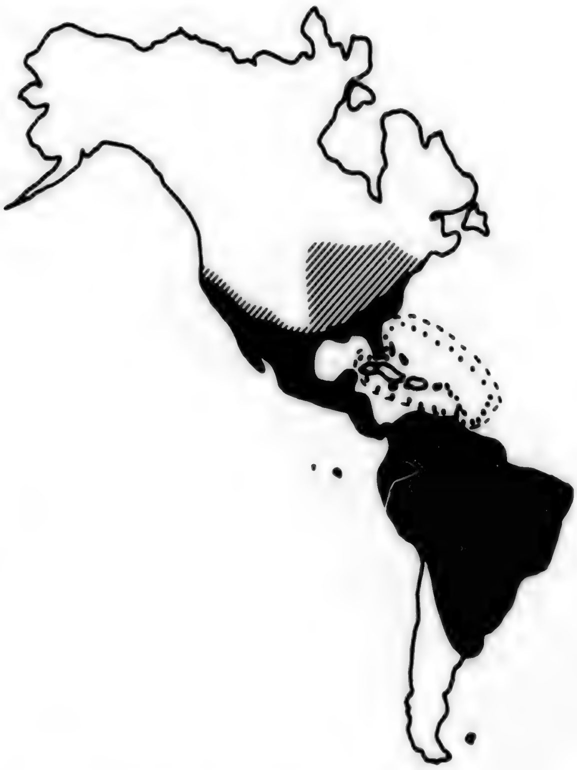
Porphyrula martinica

Purple Gallinule



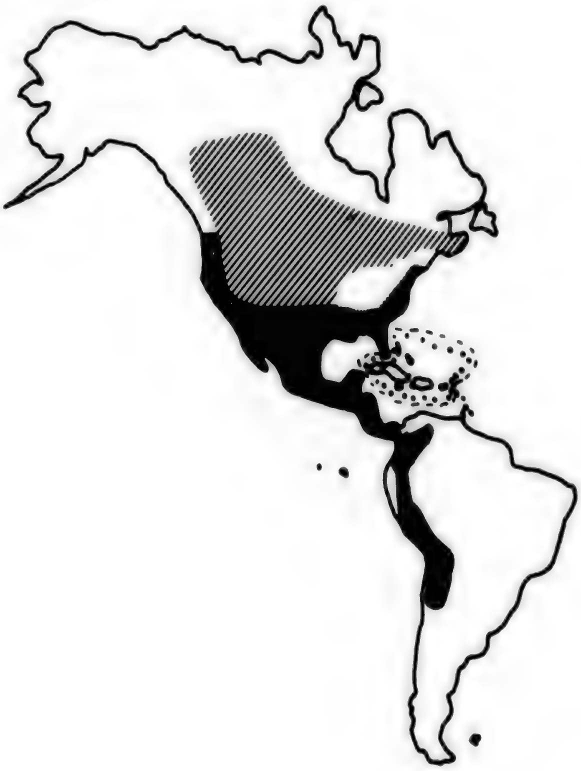
Gallinula chloropus

Common Gallinule



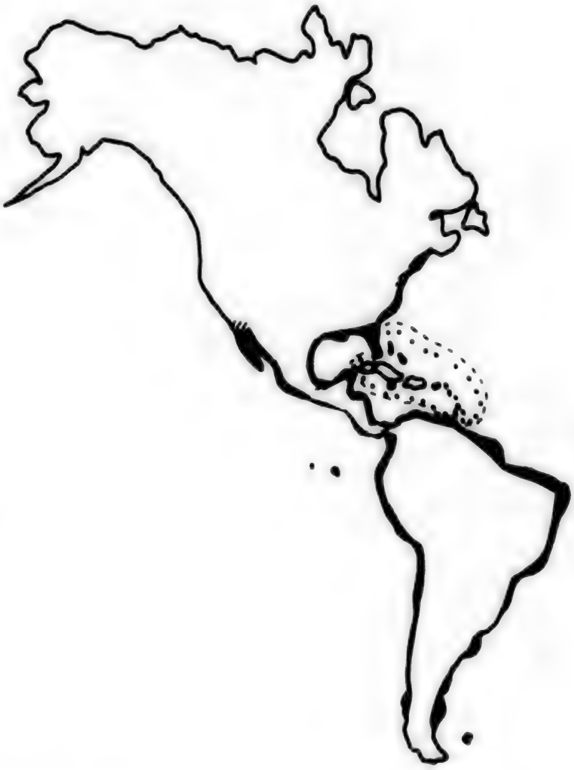
Fulica americana

American Coot



Haematopus palliatus

American Oystercatcher



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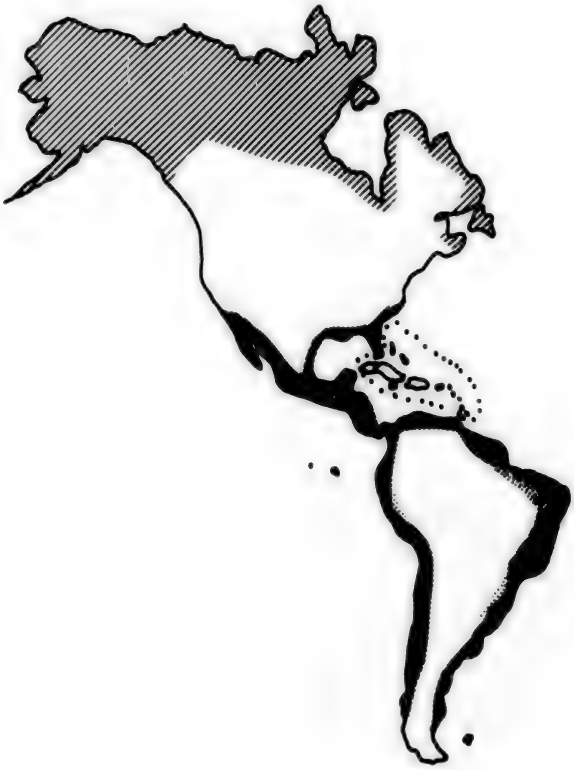
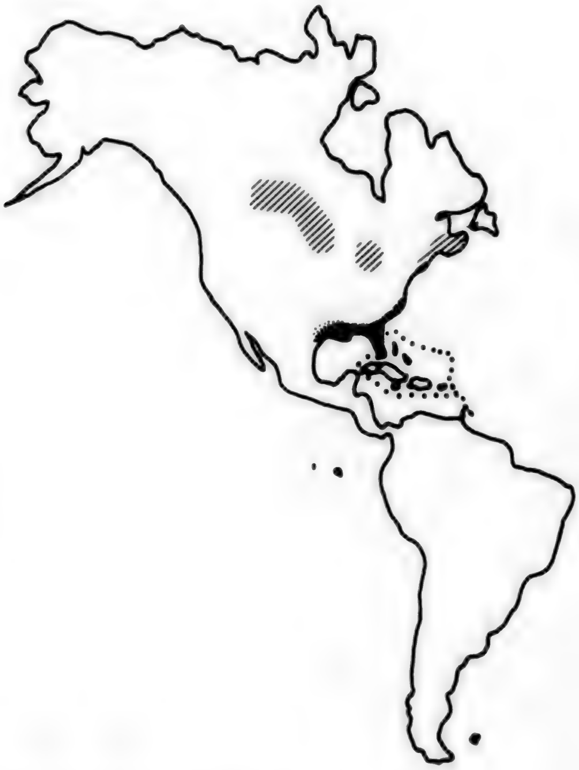
Charadrius semipalmatus

Semipalmated Plover



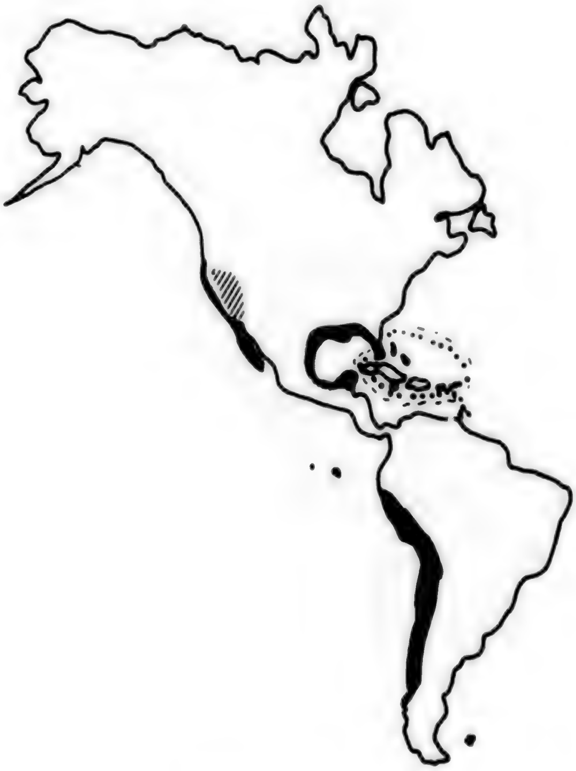
Charadrius melodus

Piping Plover



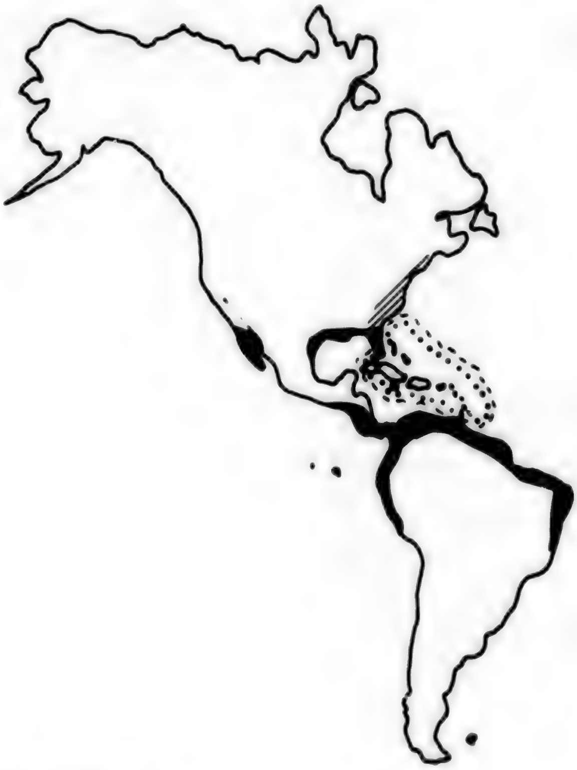
Charadrius alexandrinus

Snowy Plover



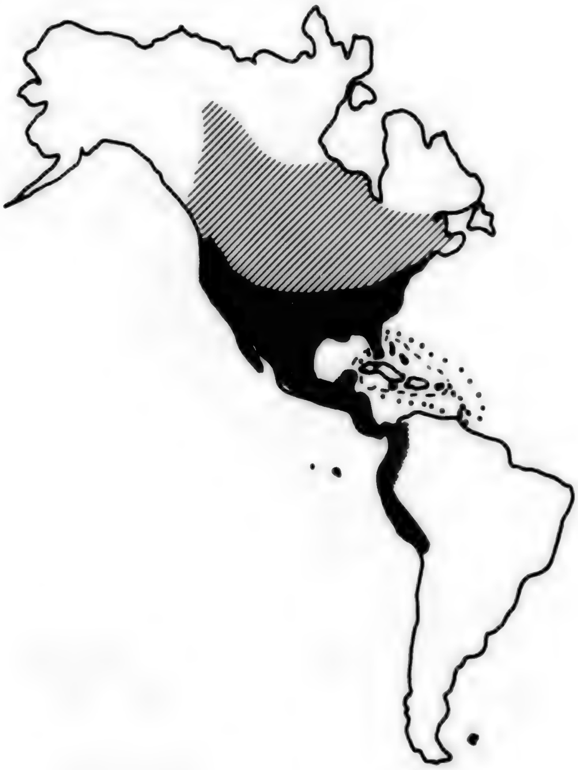
Charadrius wilsonia

Wilson's Plover



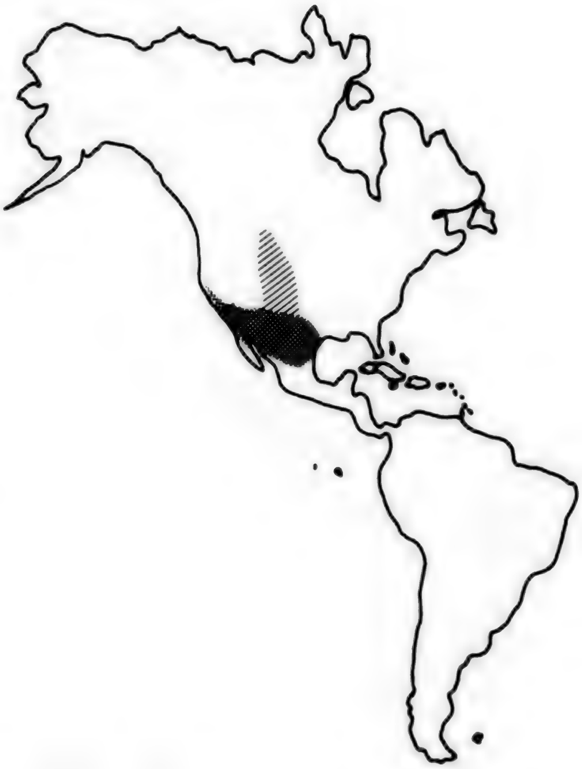
Charadrius vociferus

Killdeer



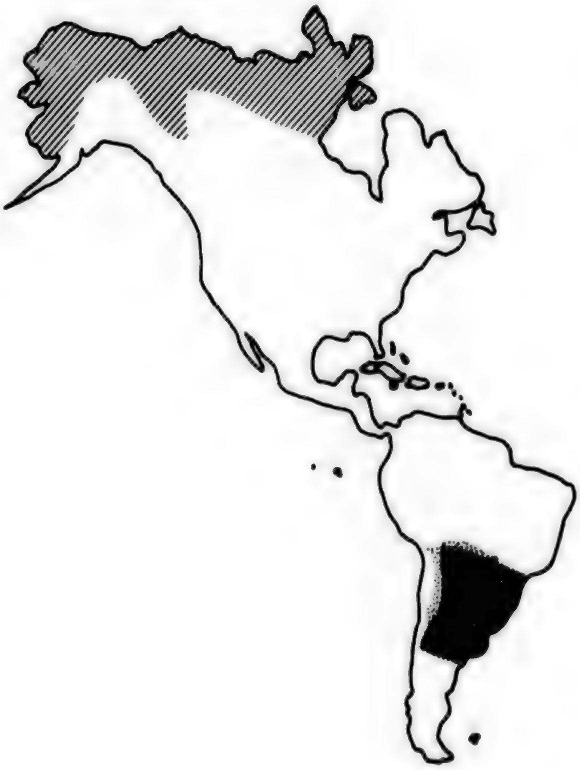
Charadrius montana

Mountain Plover



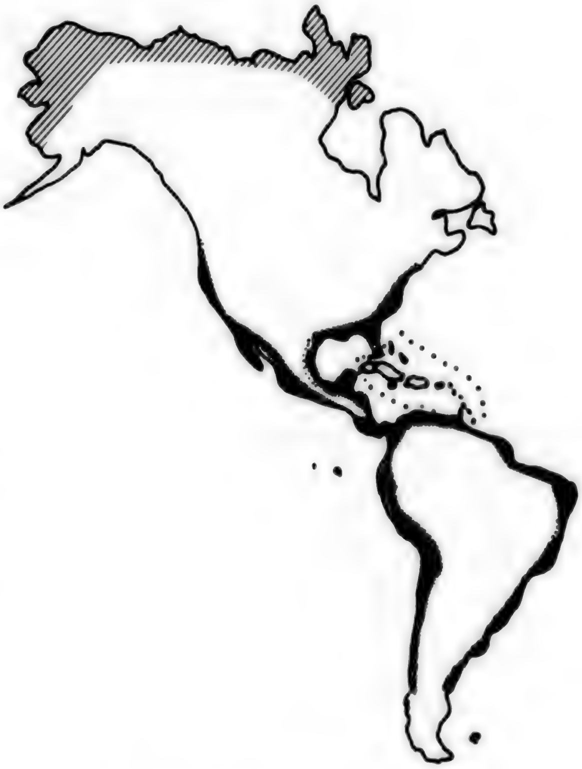
Pluvialis dominica

American Golden Plover



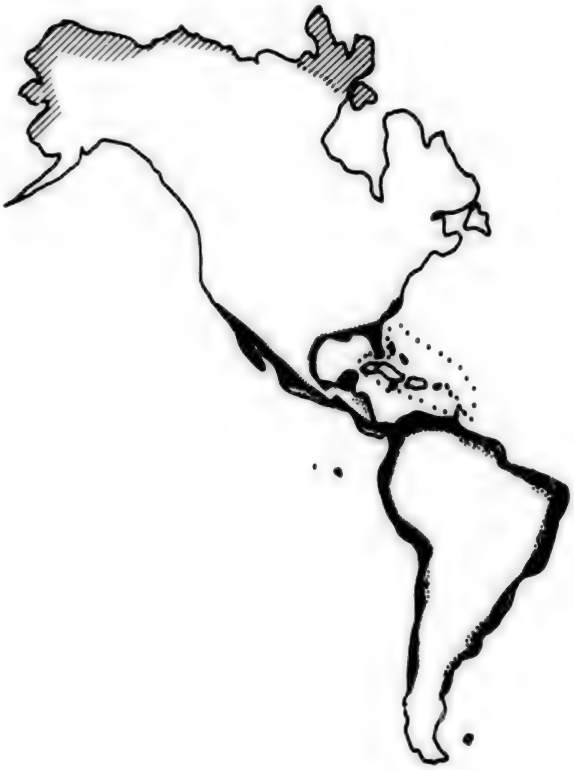
Pluvialis squatarola

Black-bellied Plover



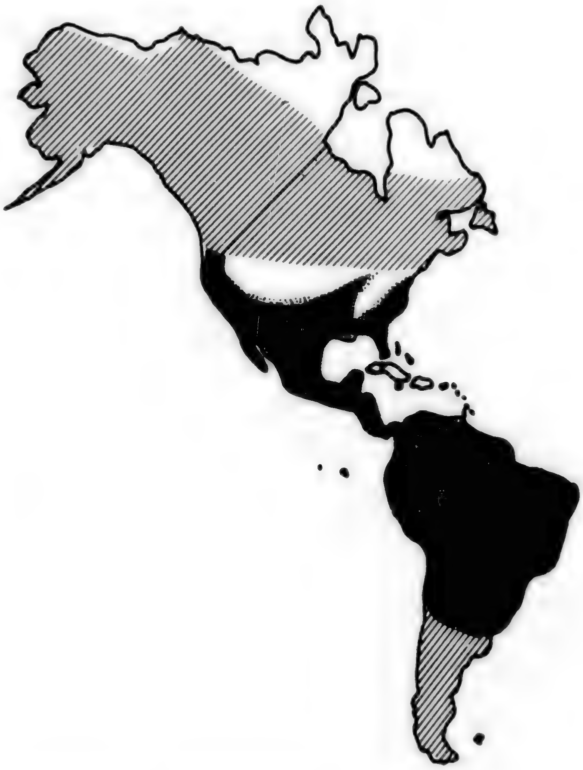
Arenaria interpres

Ruddy Turnstone



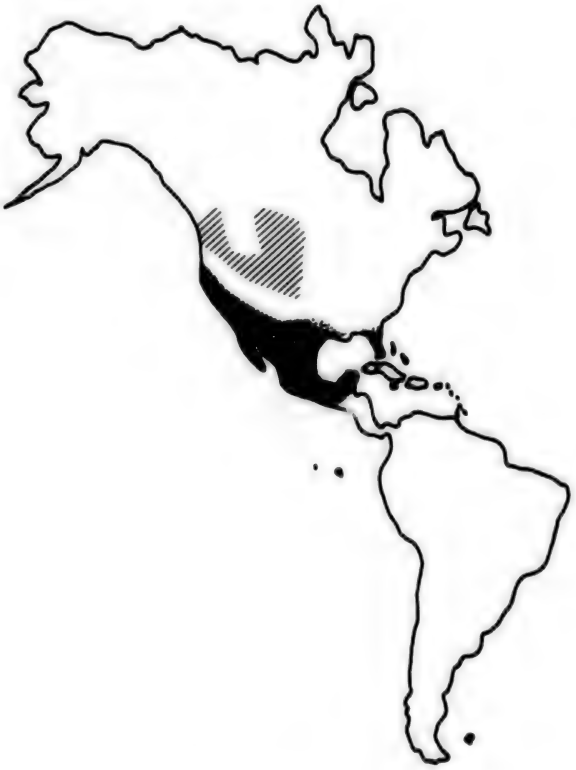
Capella gallinago

Common Snipe



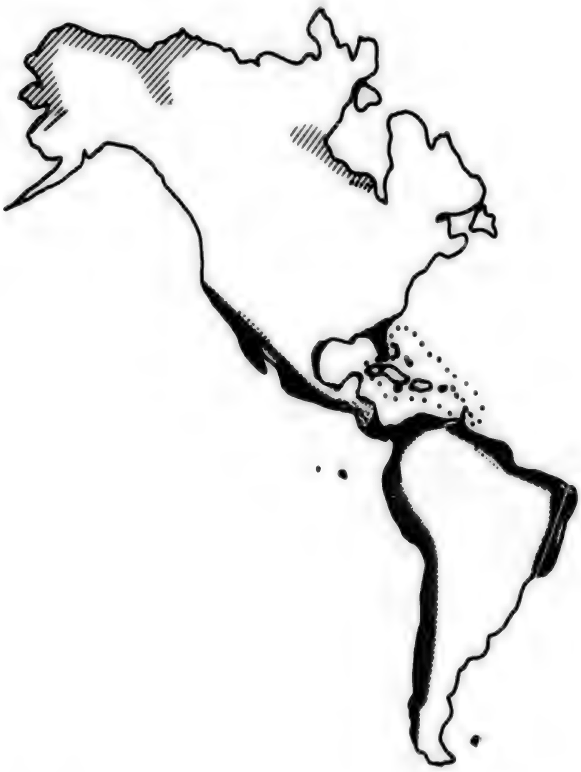
Numenius americanus

Long-billed Curlew

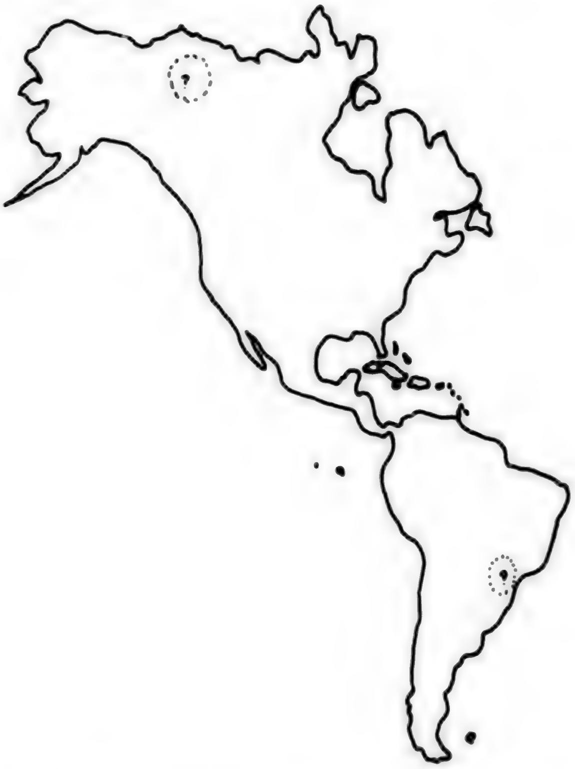


Numenius phaeopus

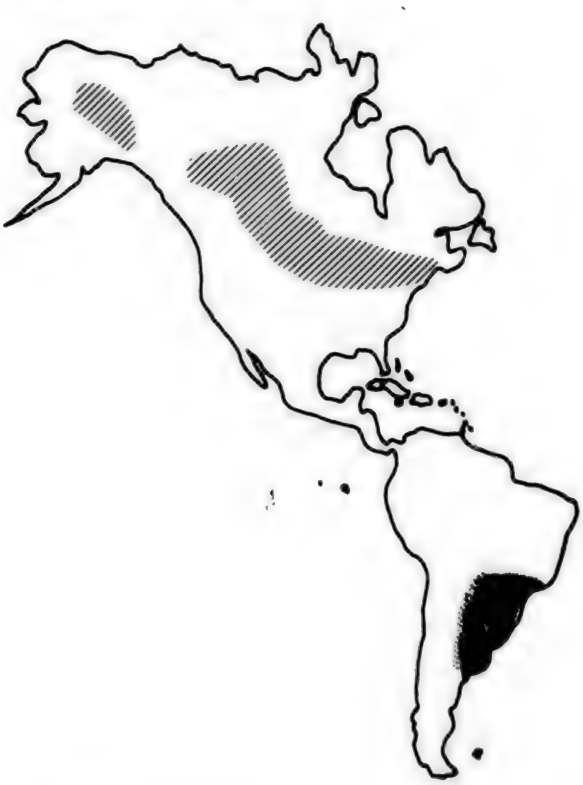
Whimbrel



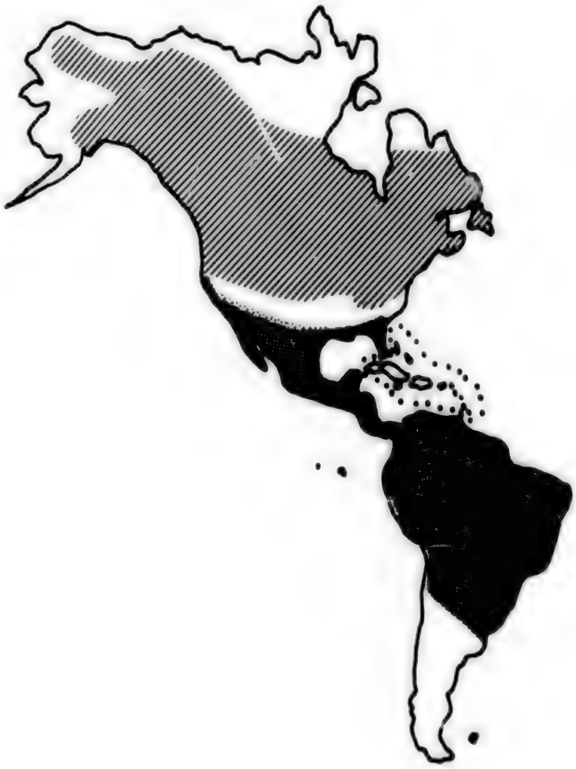
Numenius borealis - near extinction
Eskimo Curlew



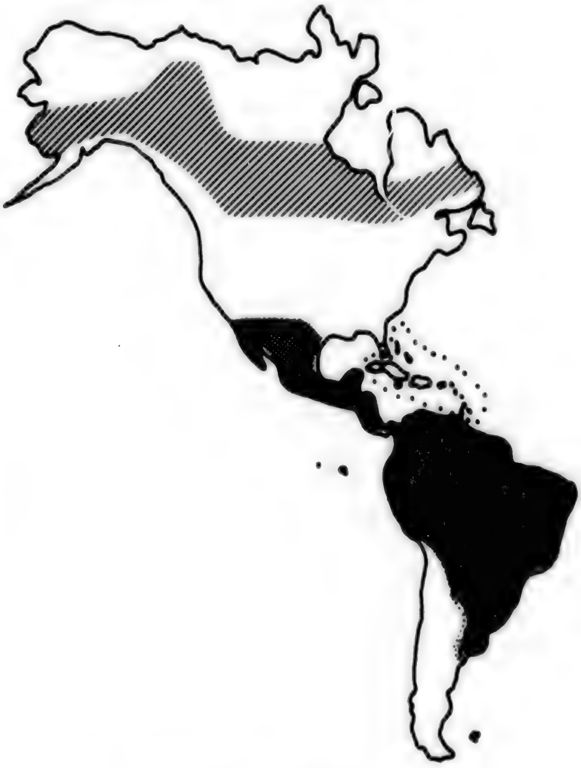
Bartramia longicauda
Upland Sandpiper



Actitis macularia
Spotted Sandpiper

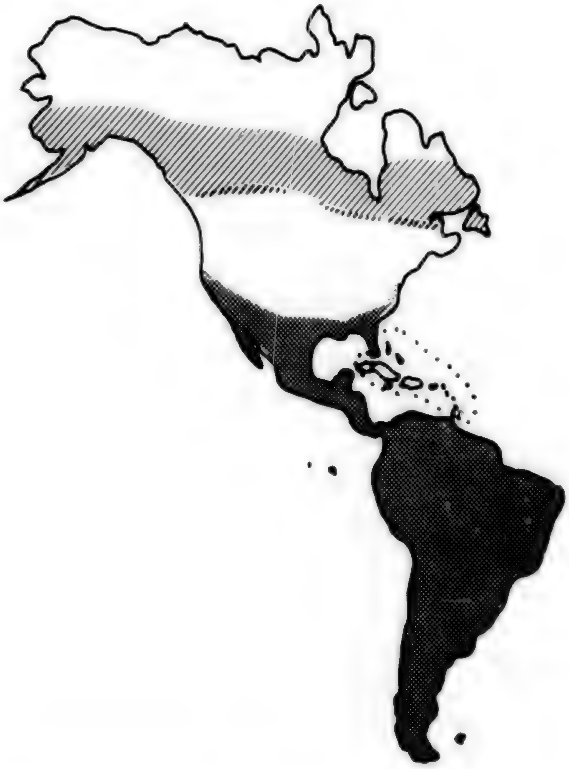


Tringa solitaria
Solitary Sandpiper



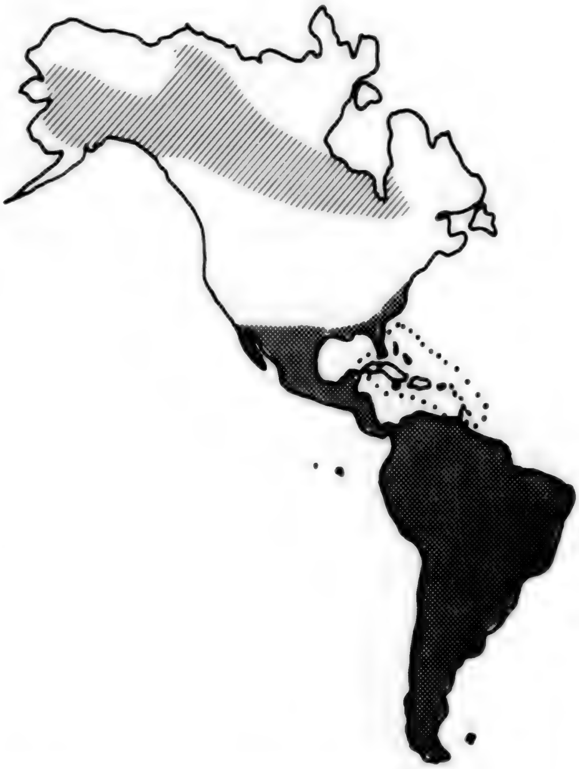
Tringa melanoleuca

Greater Yellowlegs



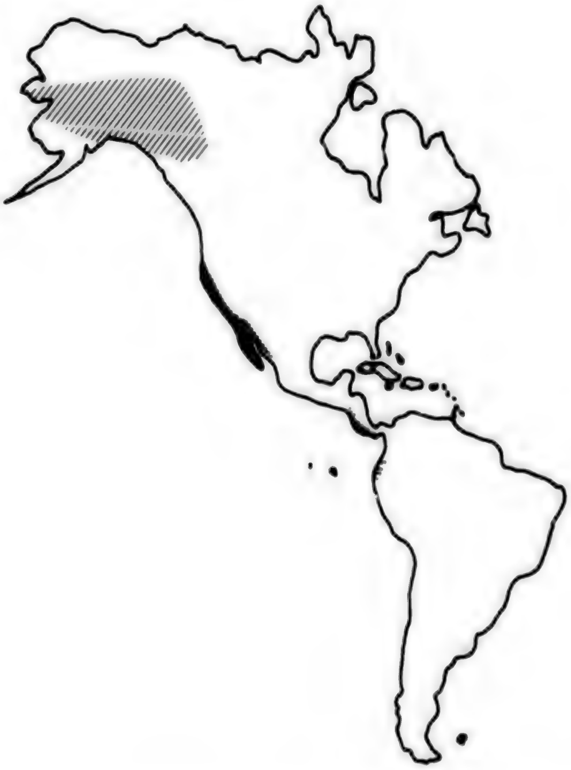
Tringa flavipes

Lesser Yellowlegs



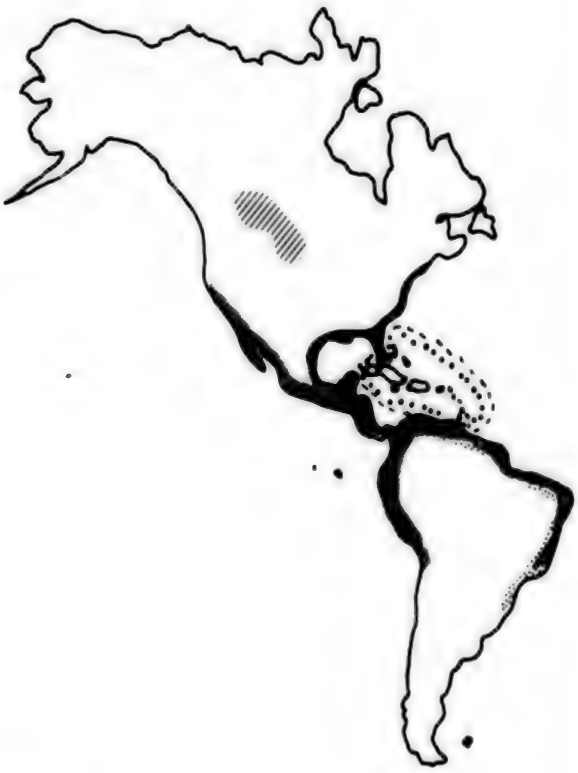
Heteroscelus incanus

Wandering Tattler

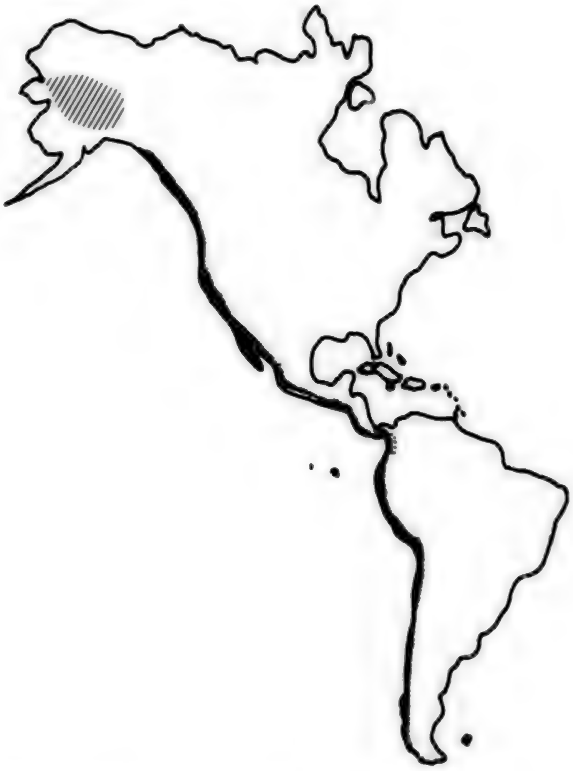


Catoptrophorus semipalmatus

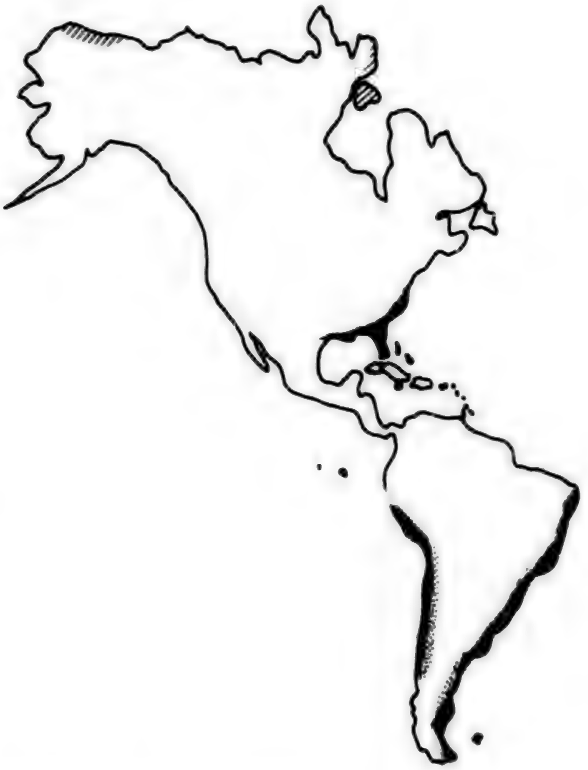
Willet



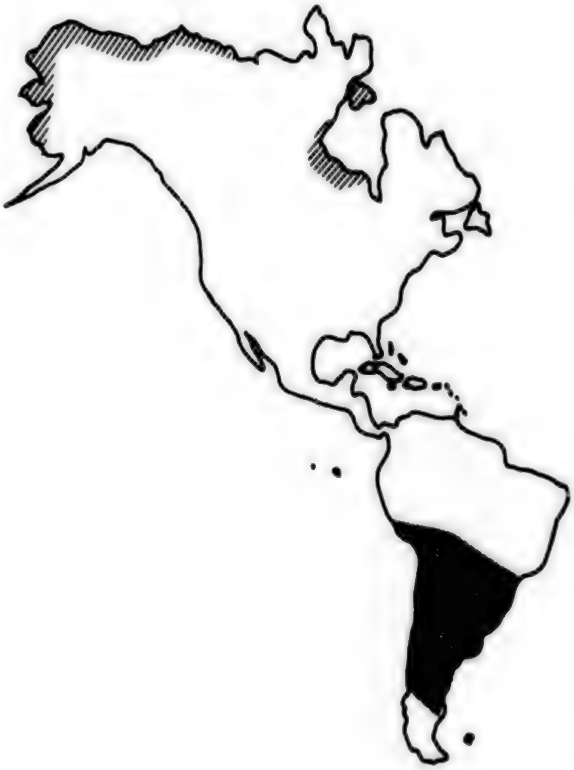
Aphriza virgata
Surfbird



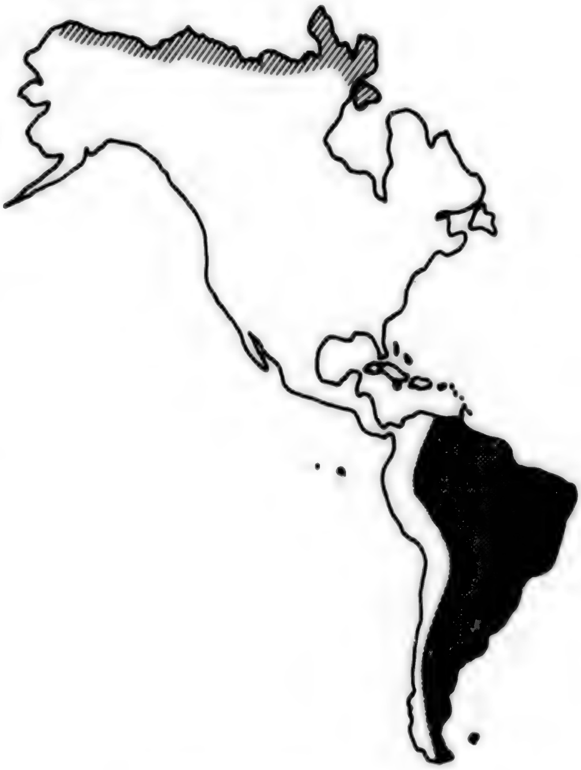
Calidris canutus
Red Knot



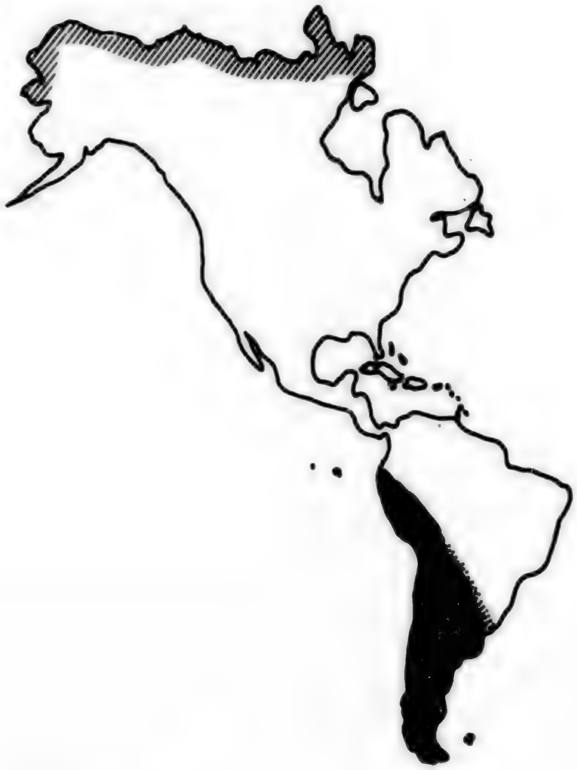
Calidris melanotos
Pectoral Sandpiper



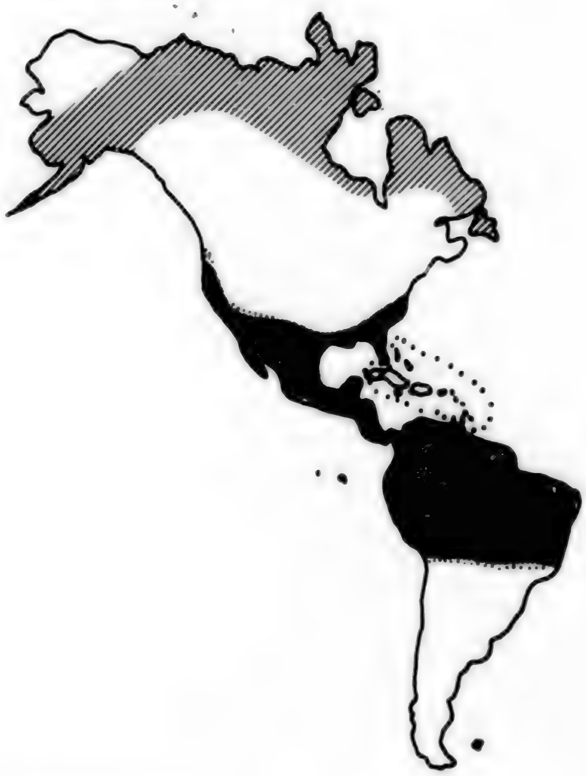
Calidris fuscicollis
White-rumped Sandpiper



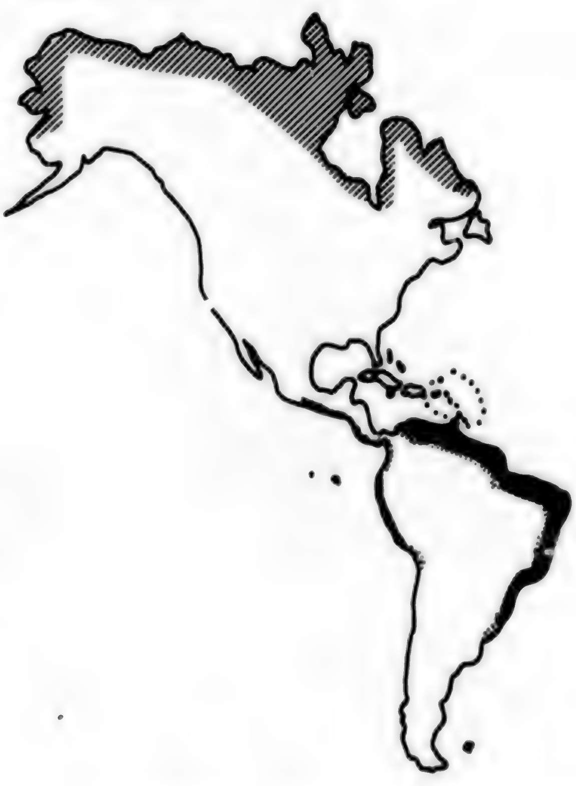
Calidris bairdii
Baird's Sandpiper



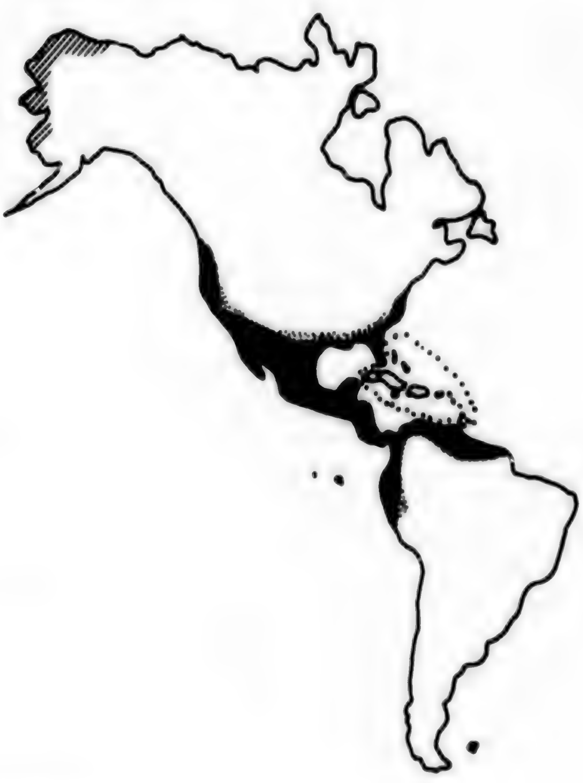
Calidris minutilla
Least Sandpiper



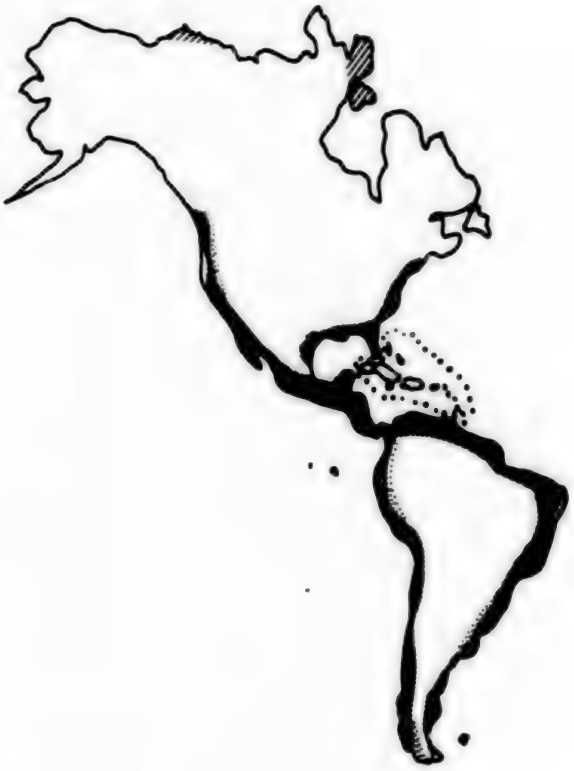
Calidris pusilla
Semipalmated Sandpiper



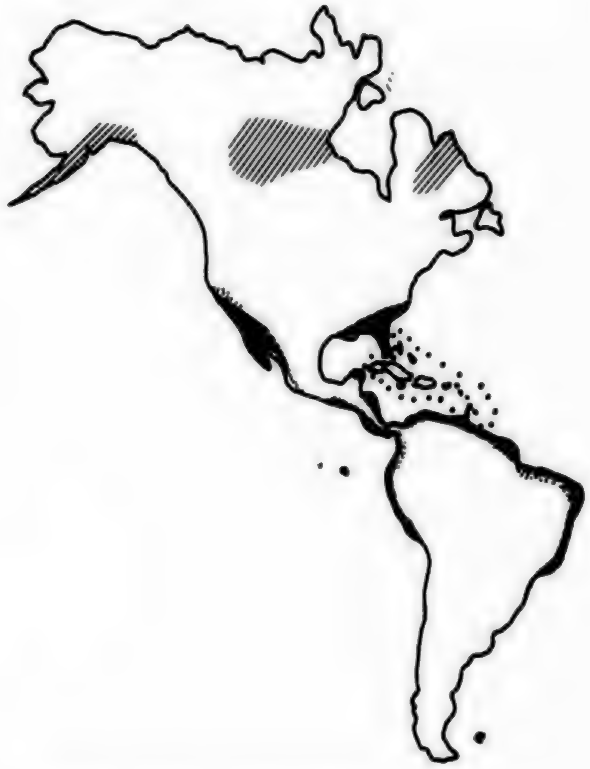
Calidris mauri
Western Sandpiper



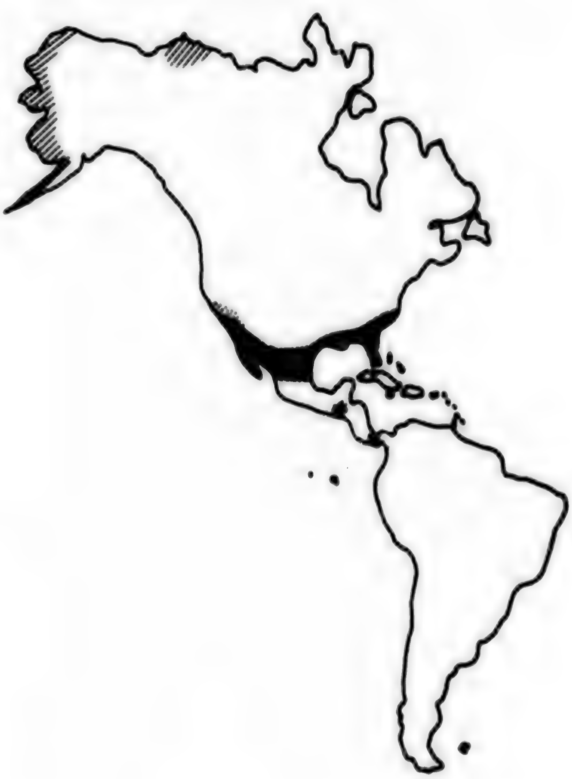
Calidris alba
Sanderling



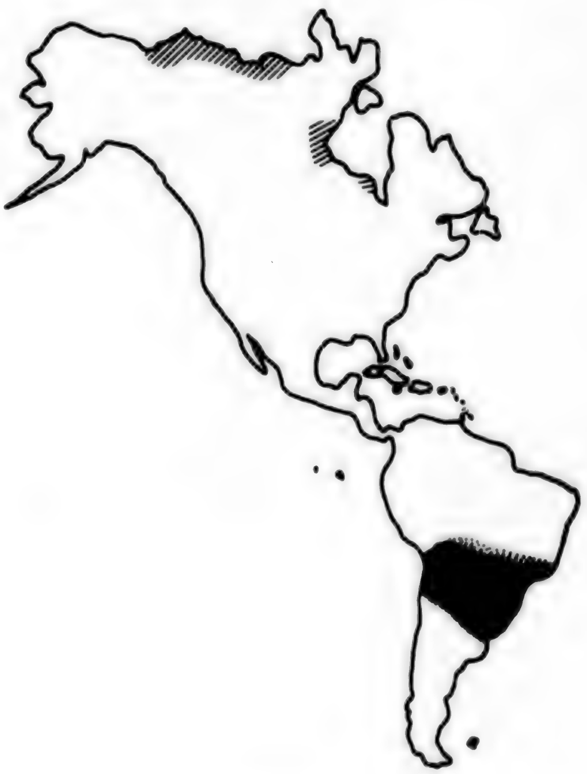
Limnodromus griseus
Short-billed Dowitcher



Limnodromus scolopaceus
Long-billed Dowitcher

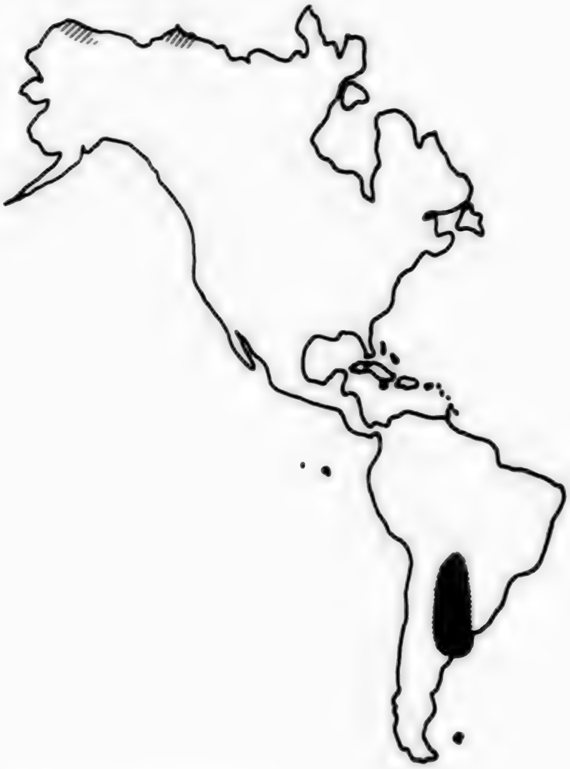


Micropalama himantopus
Stilt Sandpiper



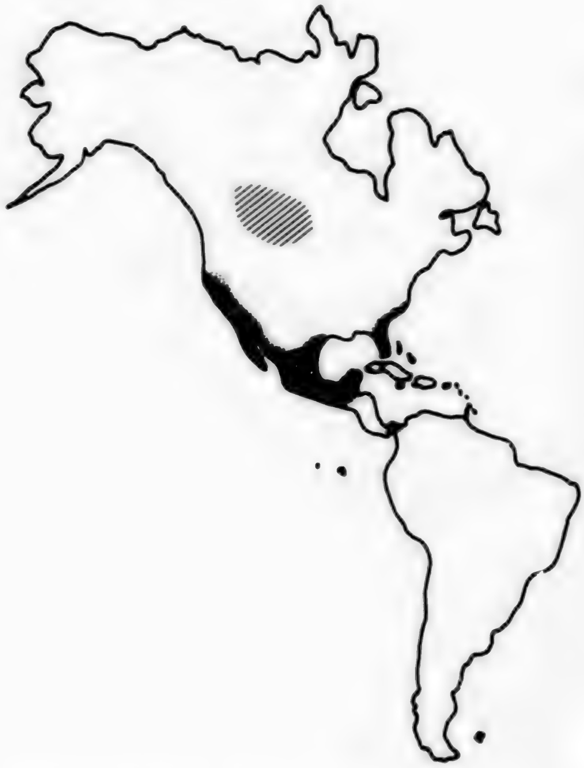
Tryngites subruficollis

Buff-breasted Sandpiper



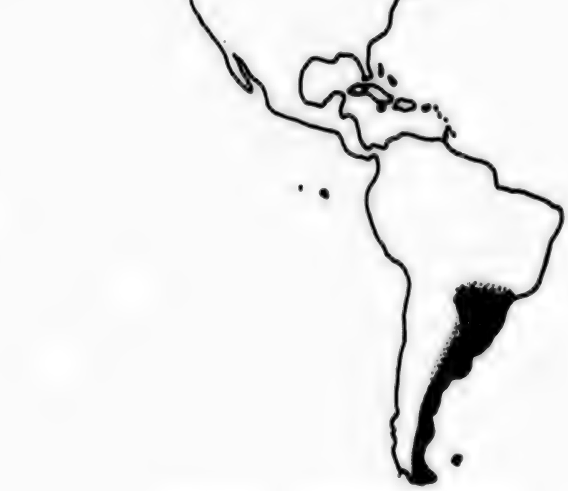
Limosa fedoa

Marbled Godwit



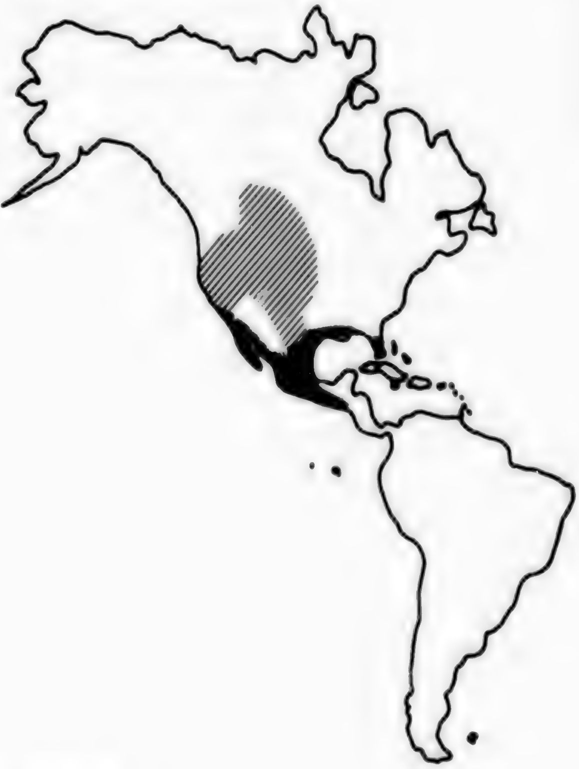
Limosa haemastica

Hudsonian Godwit

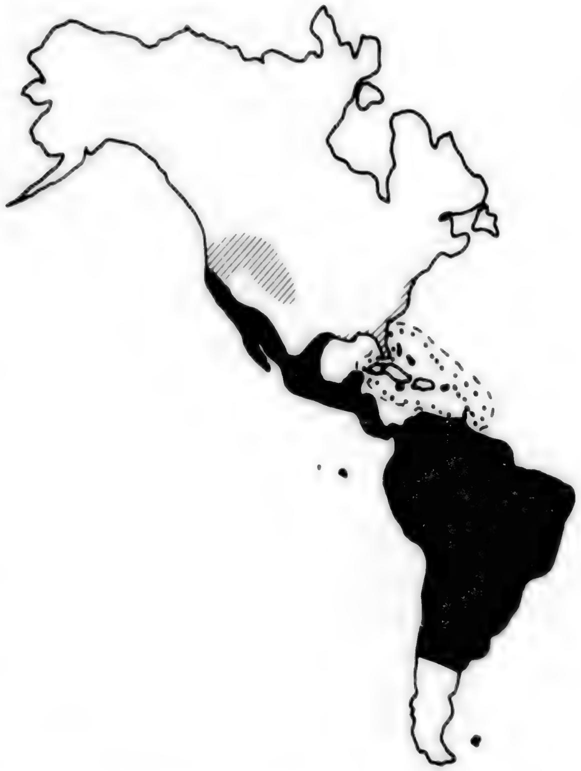


Recurvirostra americana

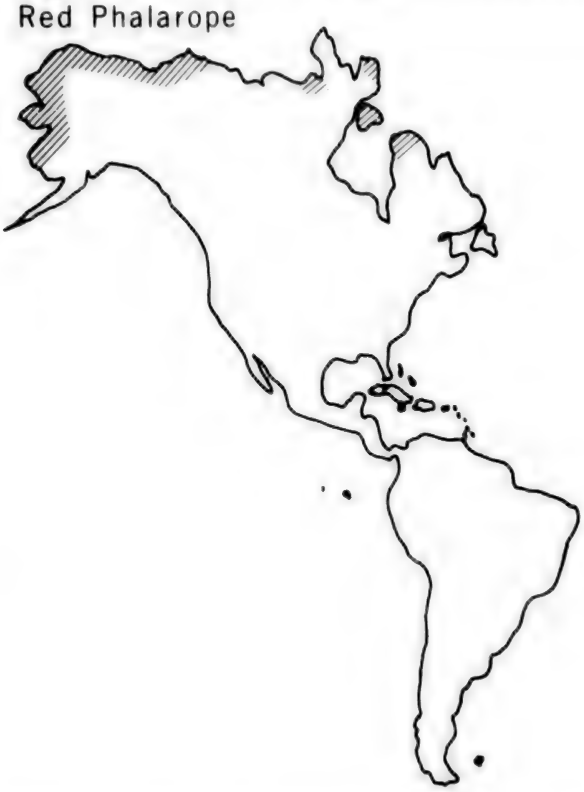
American Avocet



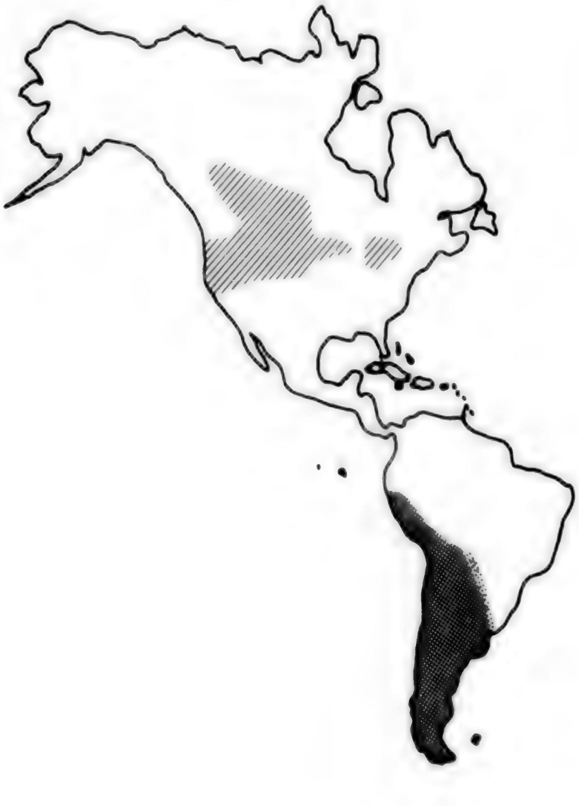
Himantopus mexicanus
Black-necked Stilt



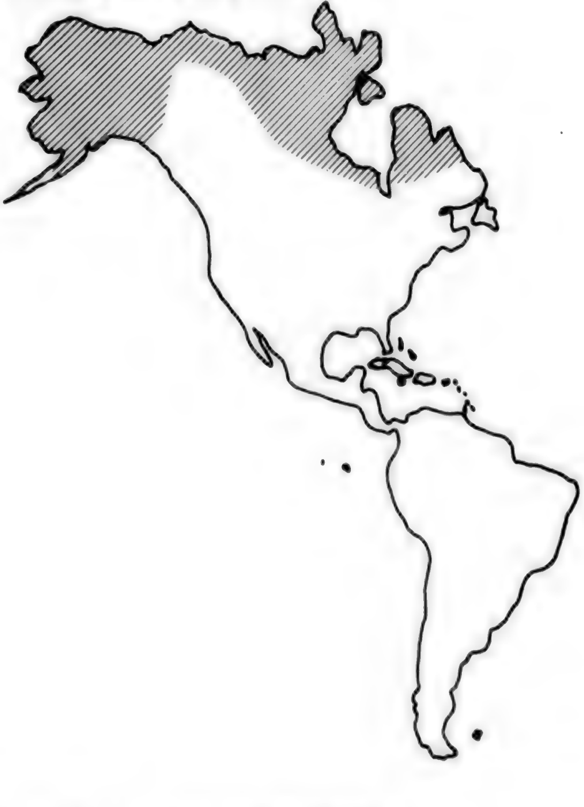
Phalaropus fulicarius - winters mostly at sea; southern Atlantic & Pacific Oceans
Red Phalarope



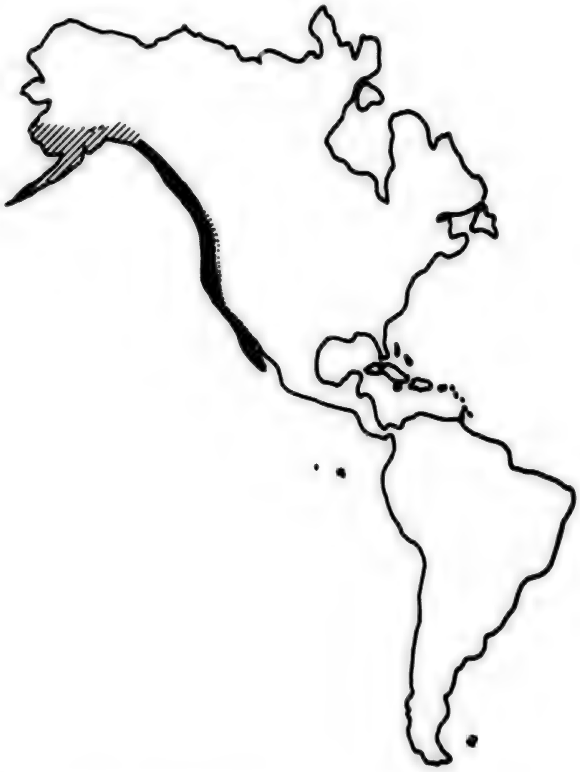
Steganopus tricolor
Wilson's Phalarope



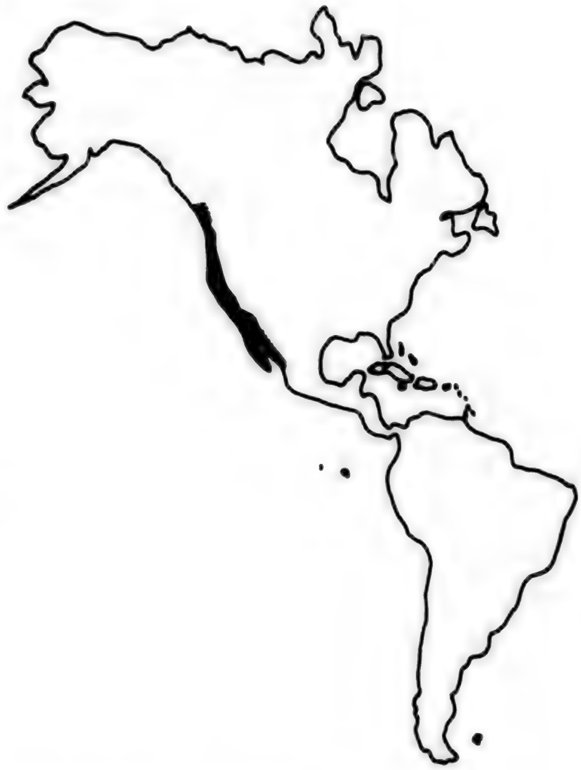
Lobipes lobatus - winters mostly at sea southern Atlantic & Pacific Oceans
Northern Phalarope



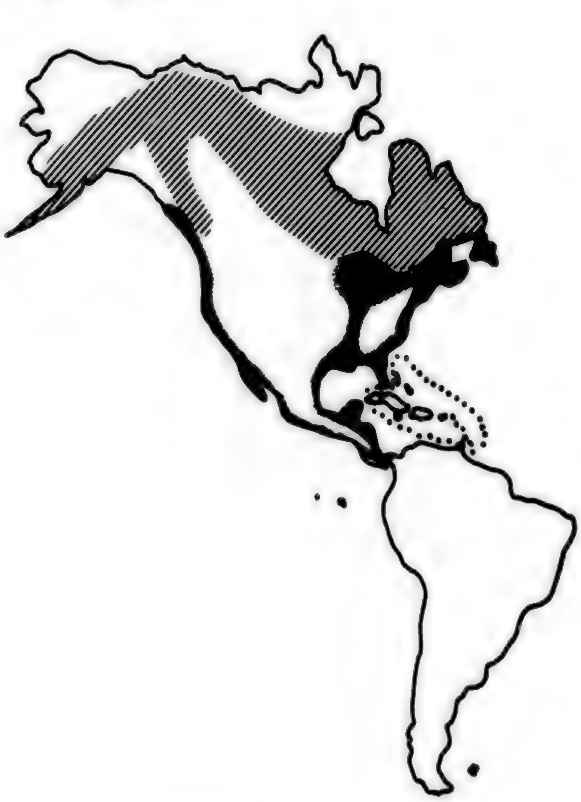
Larus glaucescens
Glaucous-winged Gull



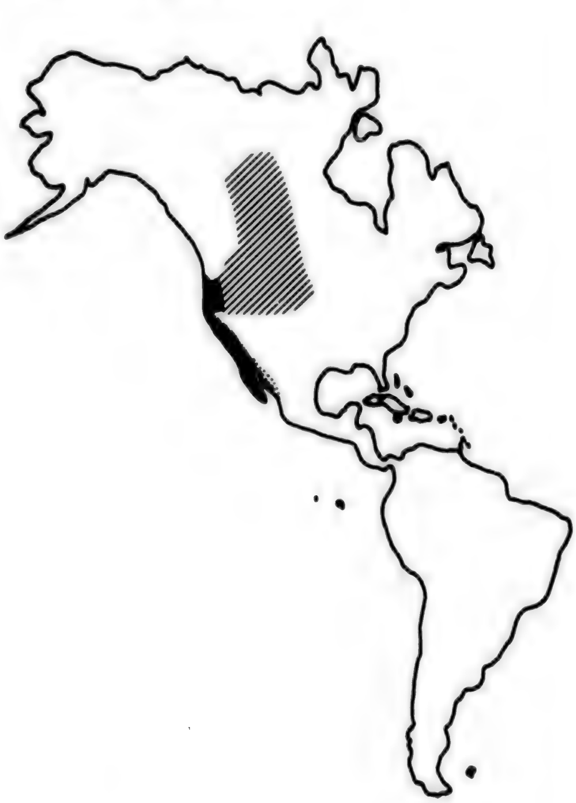
Larus occidentalis
Western Gull



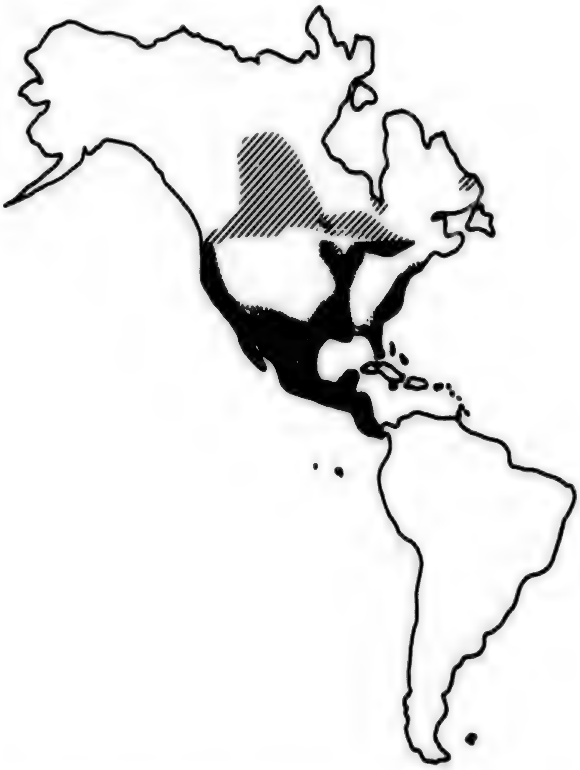
Larus argentatus
Herring Gull



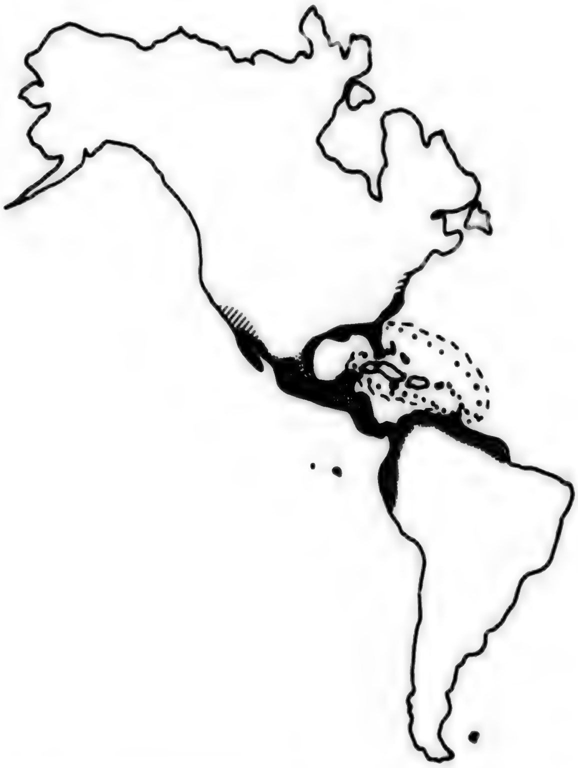
Larus californicus
California Gull



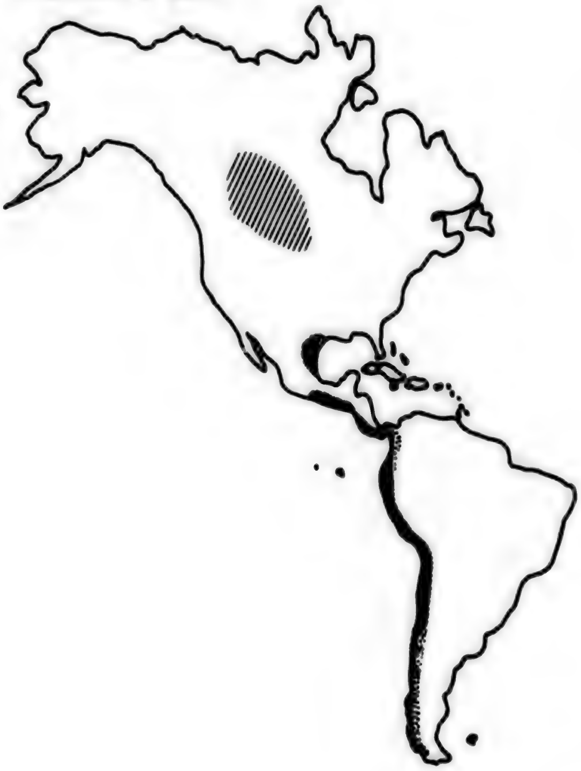
Larus delawarensis
Ring-billed Gull



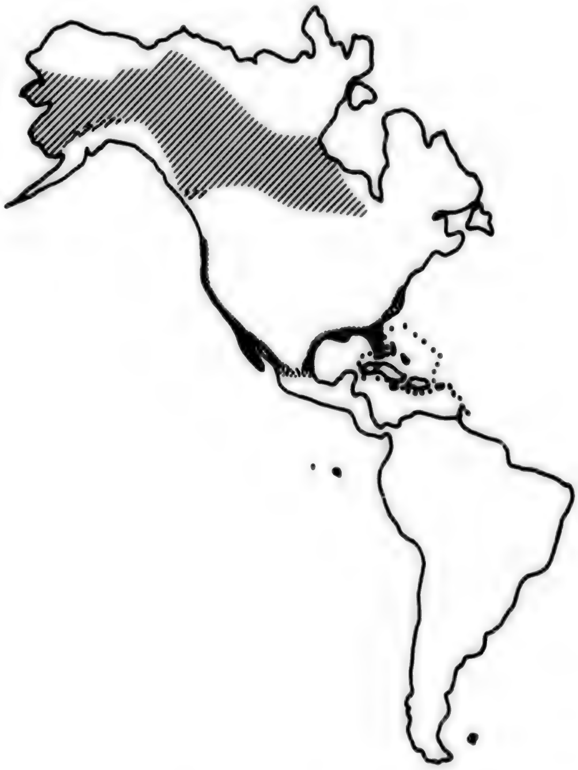
Larus atricilla
Laughing Gull



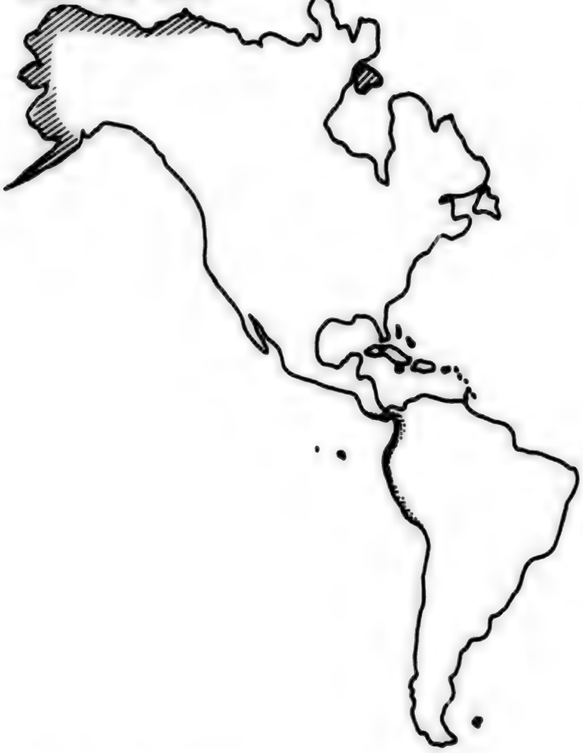
Larus pipixcan - many winter at sea
Humboldt Current
Franklin's Gull



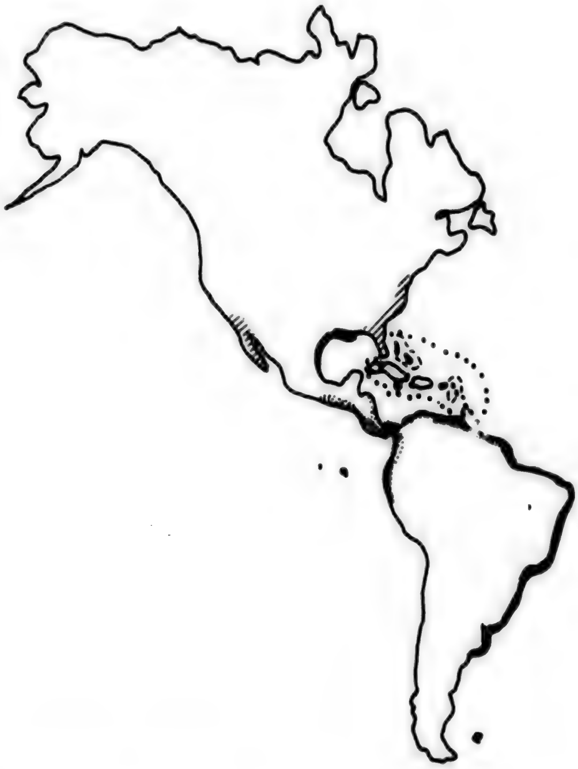
Larus philadelphia
Bonaparte's Gull



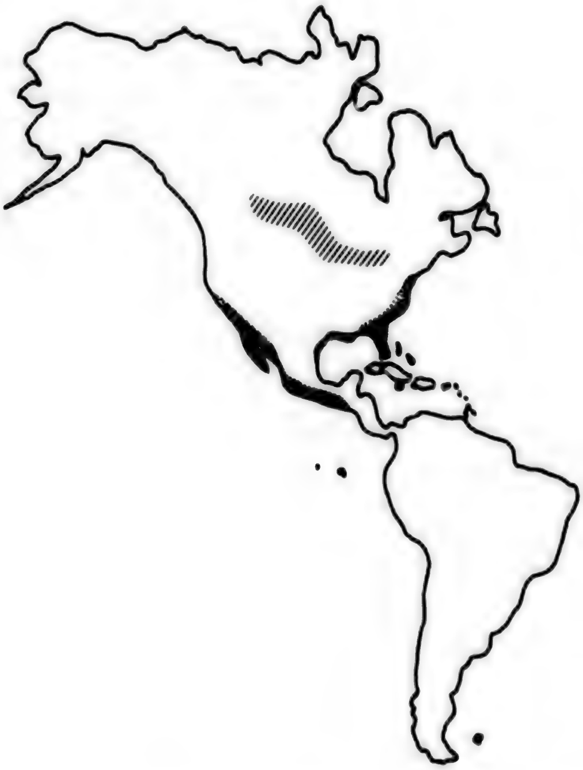
Xema sabini - many winter at sea -
Humboldt Current
Sabine's Gull



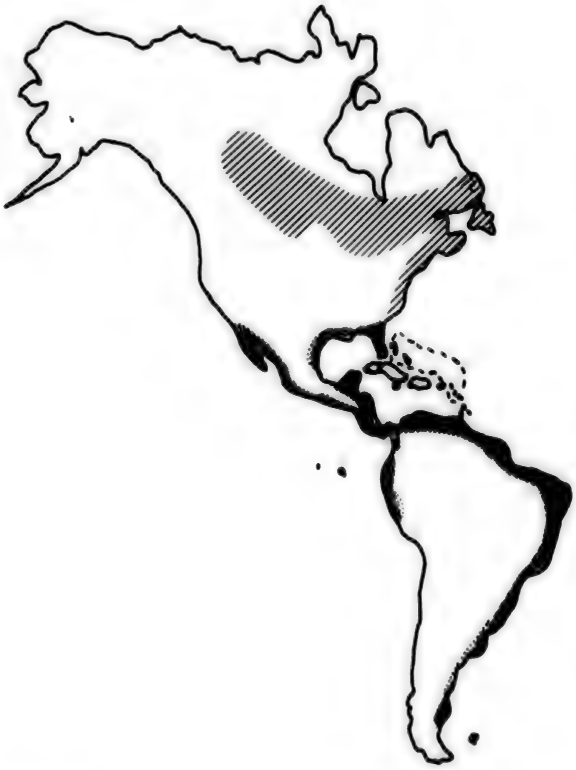
Gelochelidon nilotica
Gull-billed Tern



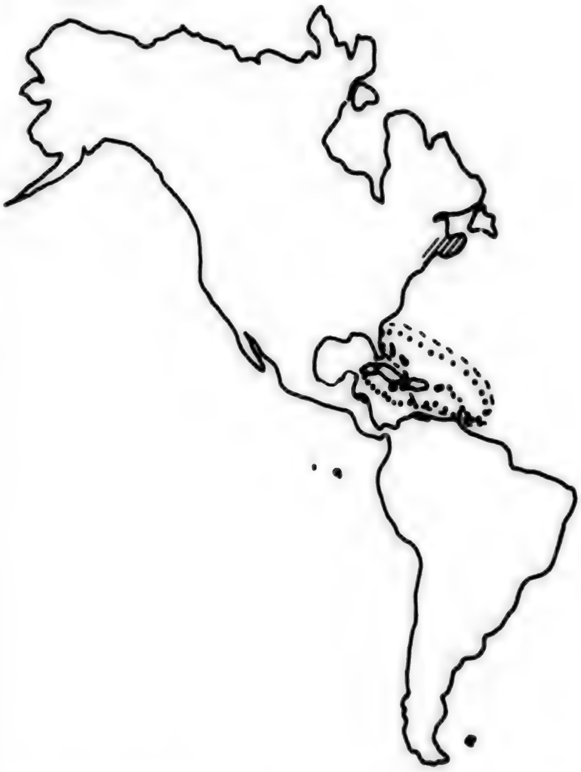
Sterna forsteri
Forster's Tern



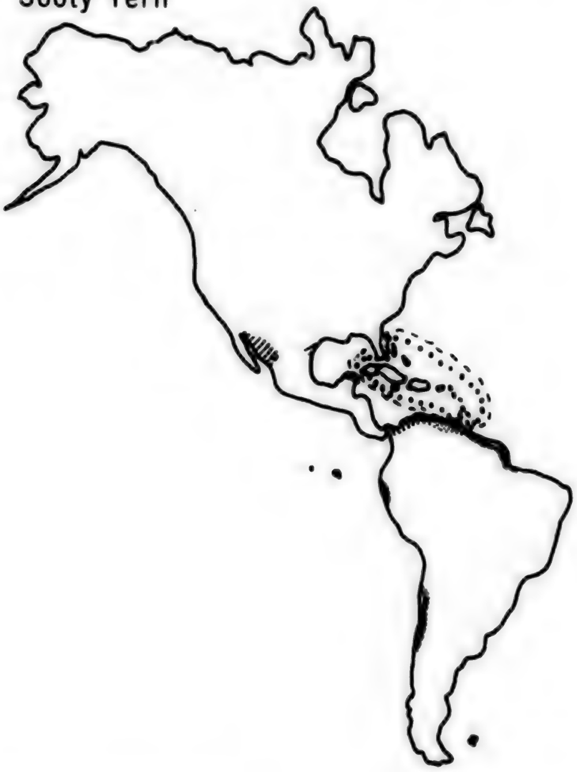
Sterna hirundo
Common Tern



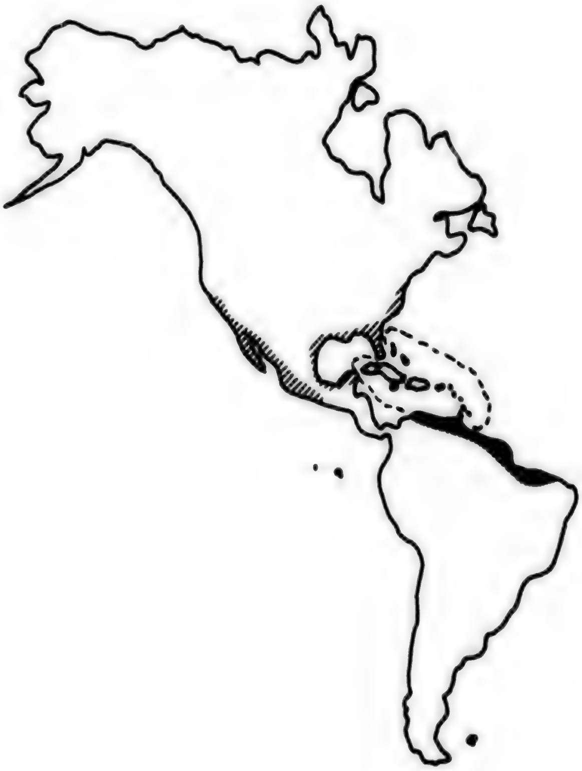
Sterna dougallii
Roseate Tern



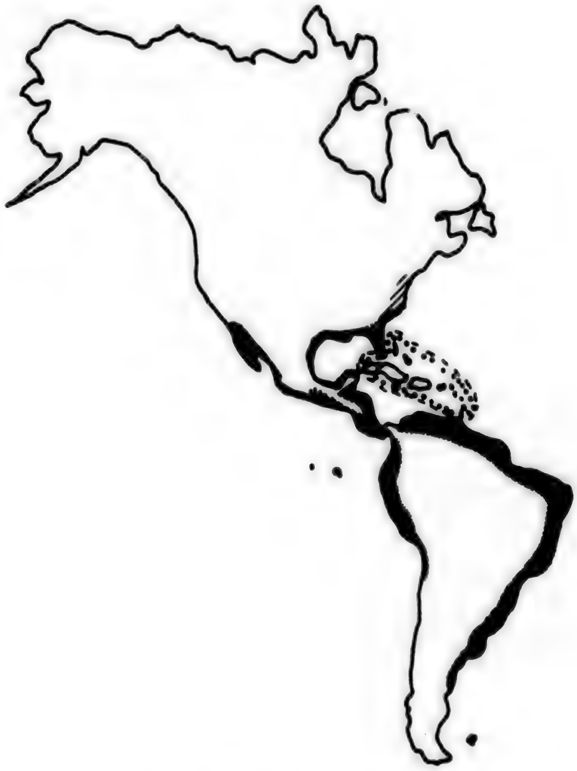
Sterna fuscata - many winter at sea in the Caribbean
Sooty Tern



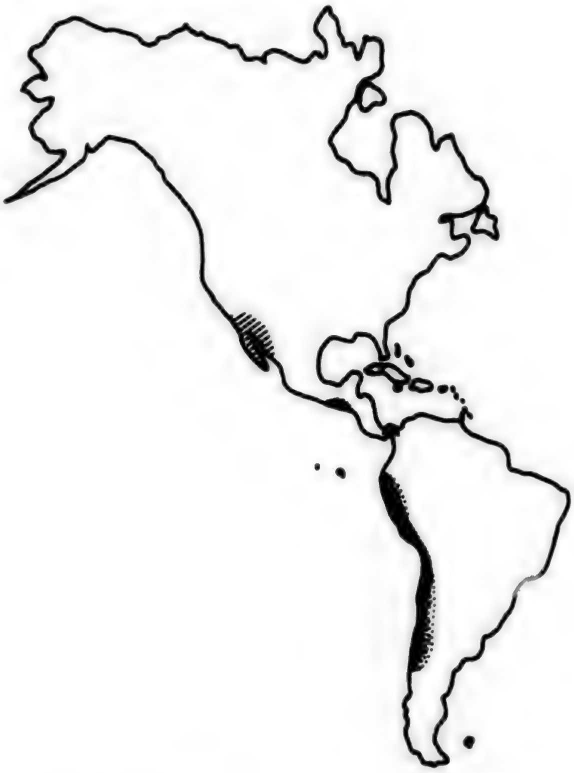
Sterna albifrons
Least Tern



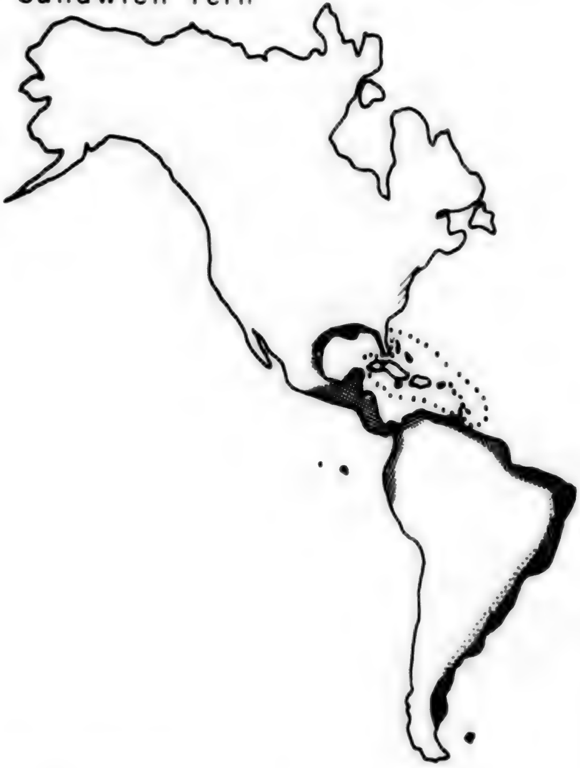
Sterna maxima
Royal Tern



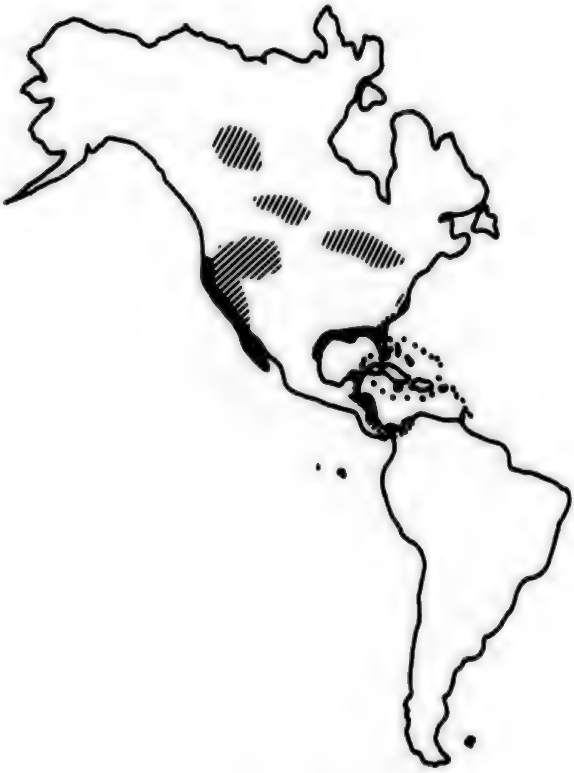
Sterna elegans
Elegant Tern



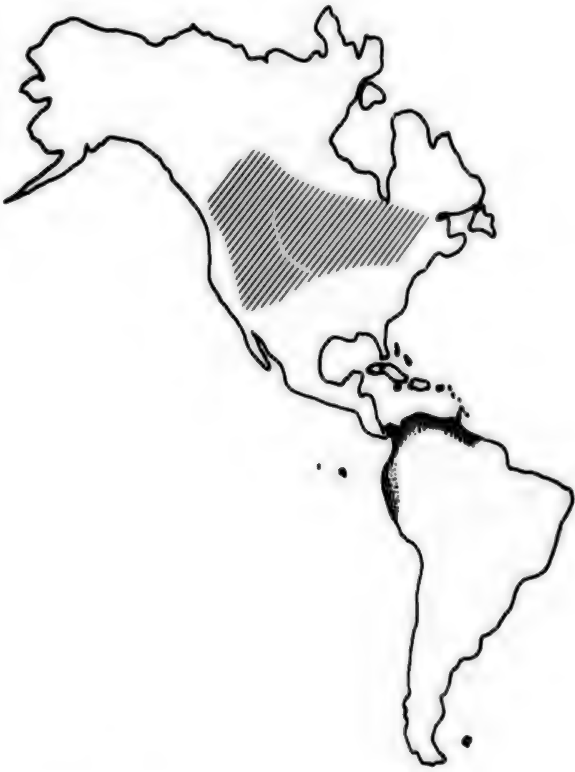
Sterna sandvicensis - includes **S. eurygnatha**
Sandwich Tern



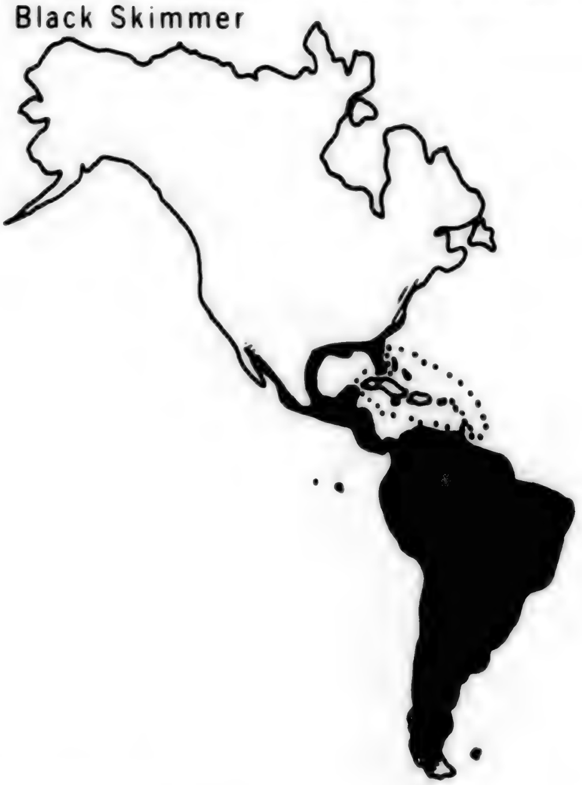
Sterna caspia
Caspian Tern



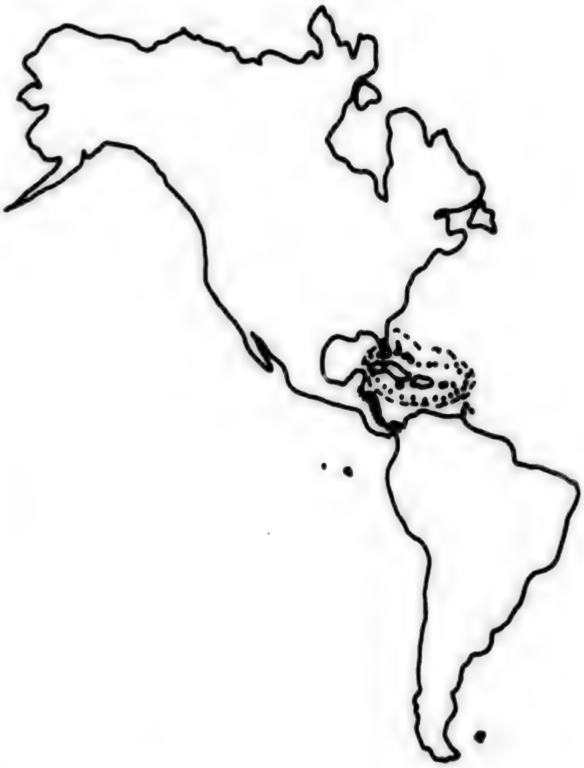
Chlidonias niger
Black Tern



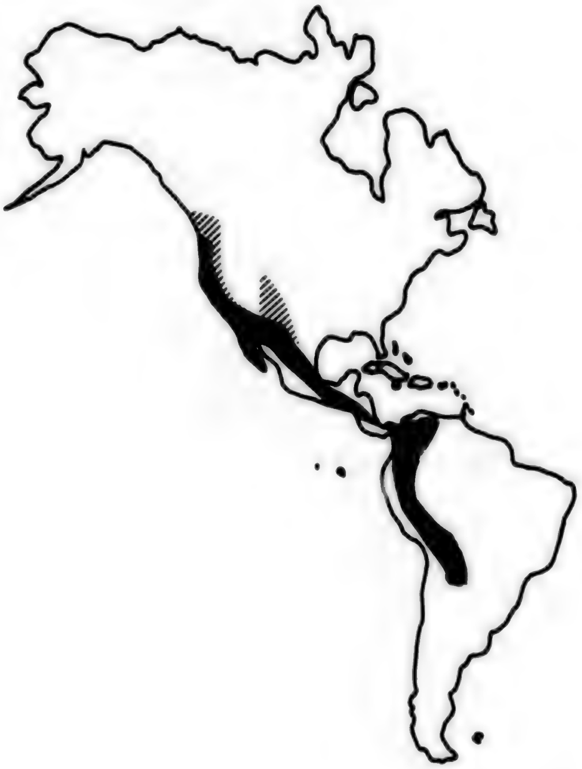
Rynchops niger - found along coasts & major river systems of South America
Black Skimmer



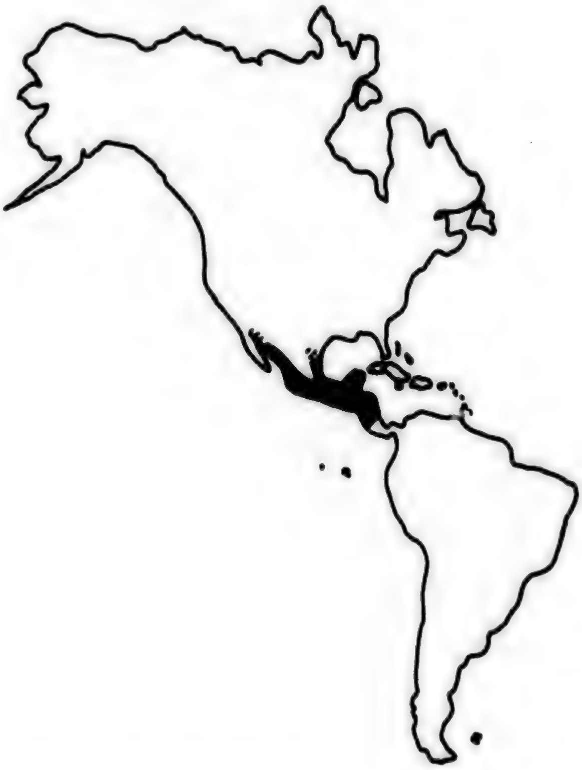
Columba leucocephala
White-crowned Pigeon



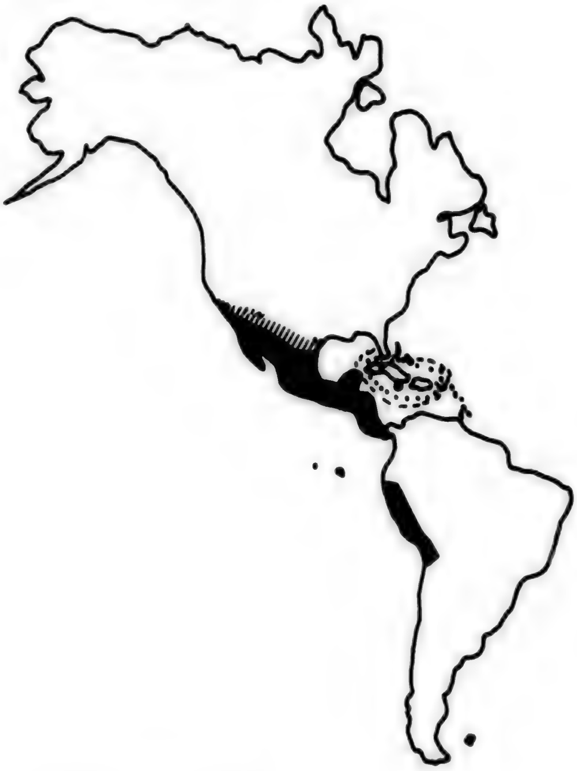
Columba fasciata
Band-tailed Pigeon



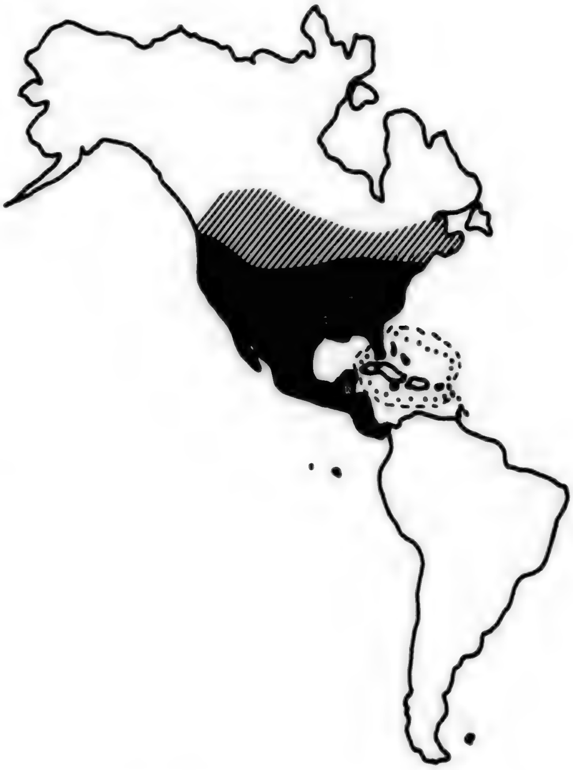
Columba flavirostris
Red-billed Pigeon



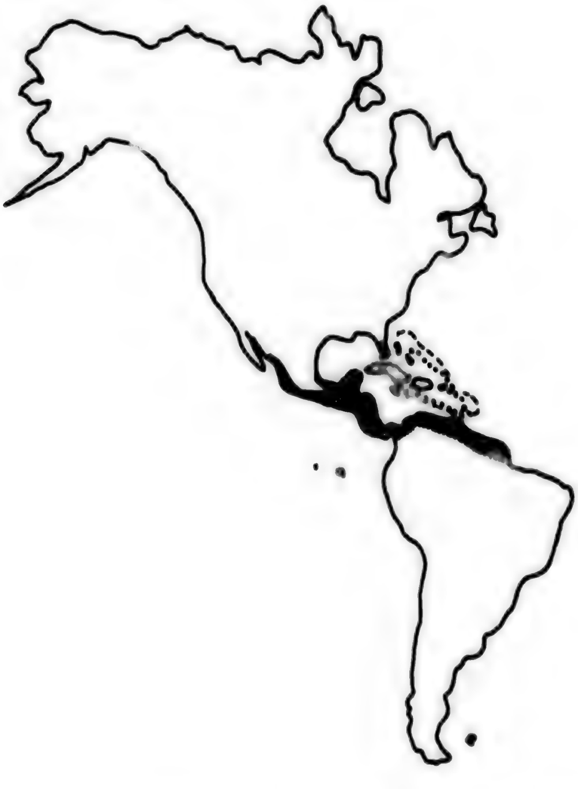
Zenaida asiatica
White-winged Dove



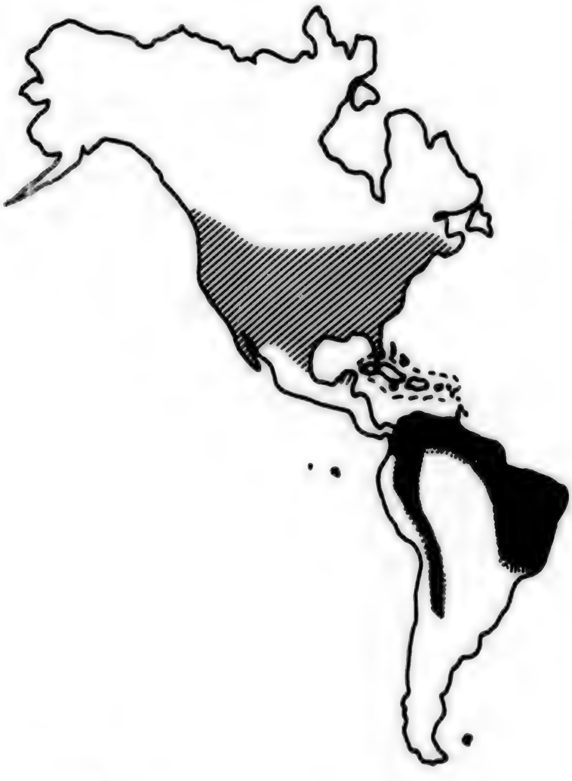
Zenaida macroura
Mourning Dove



Coccyzus minor
Mangrove Cuckoo

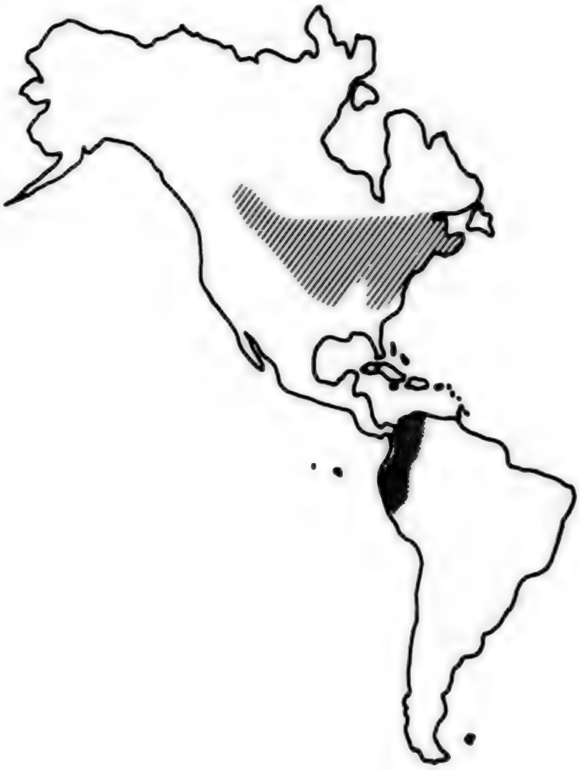


Coccyzus americanus
Yellow-billed Cuckoo



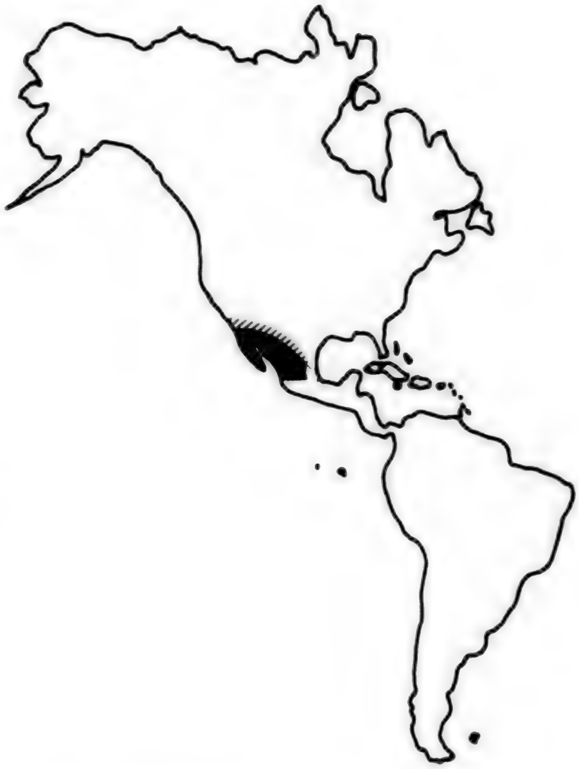
Coccyzus erythropthalmus

Black-billed Cuckoo



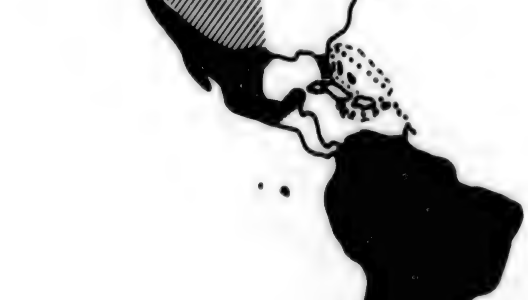
Micrathene whitneyi

Elf Owl



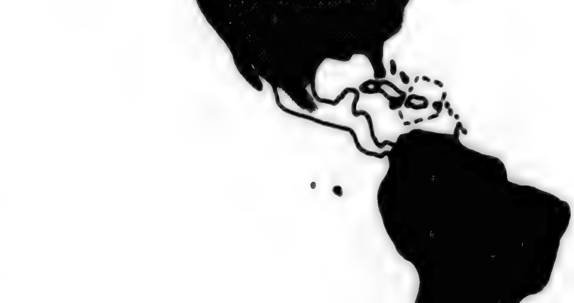
Athene cunicularia

Burrowing Owl

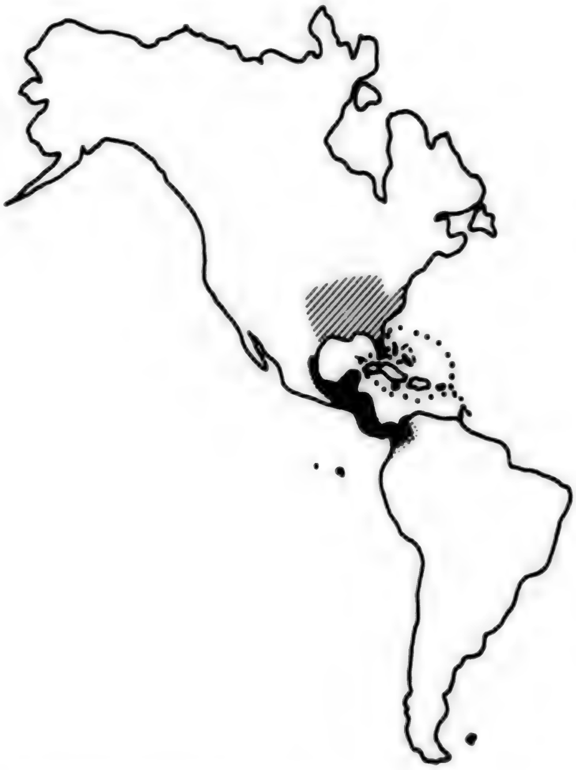


Asio flammeus

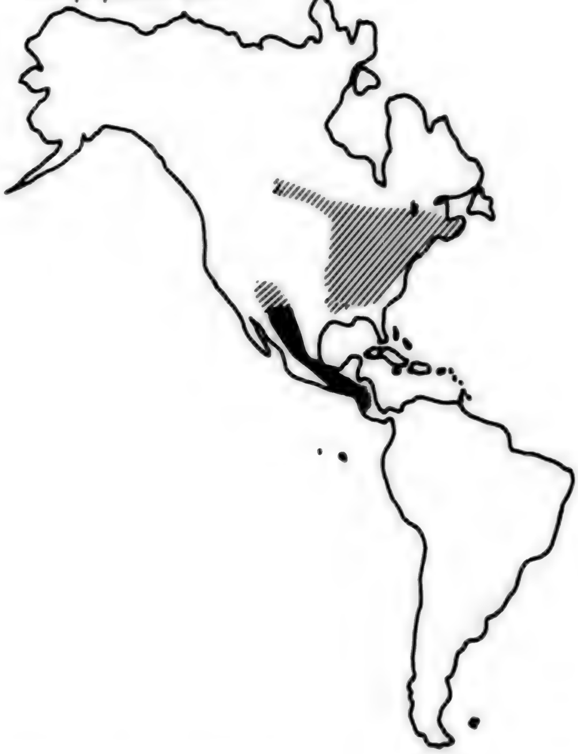
Short-eared Owl



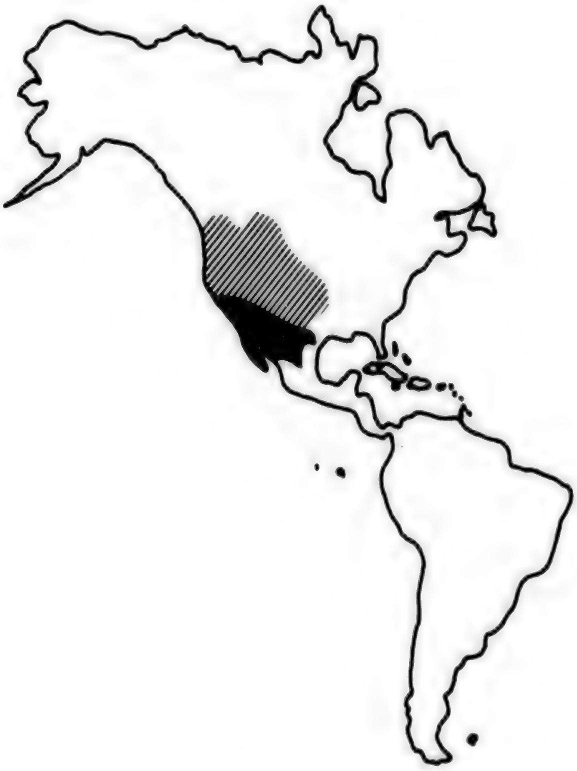
Caprimulgus carolinensis
Chuck-will's-widow



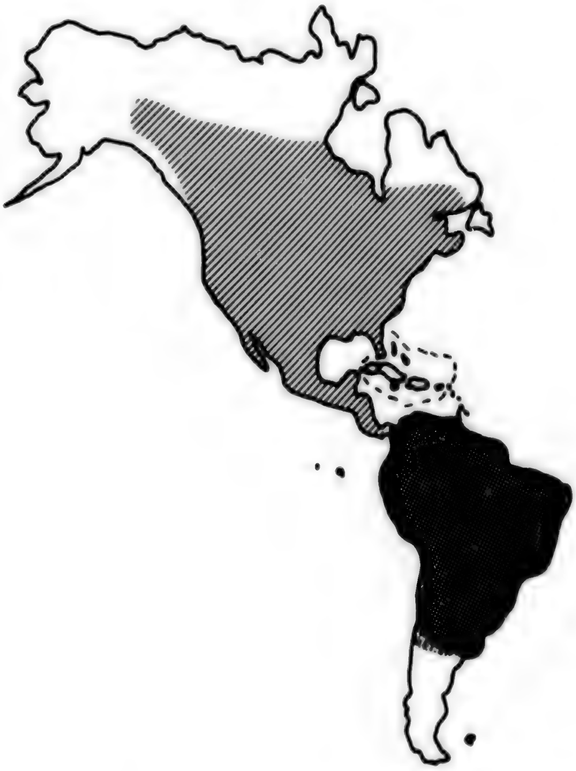
Caprimulgus vociferus - includes noctitherus
Whip-poor-will



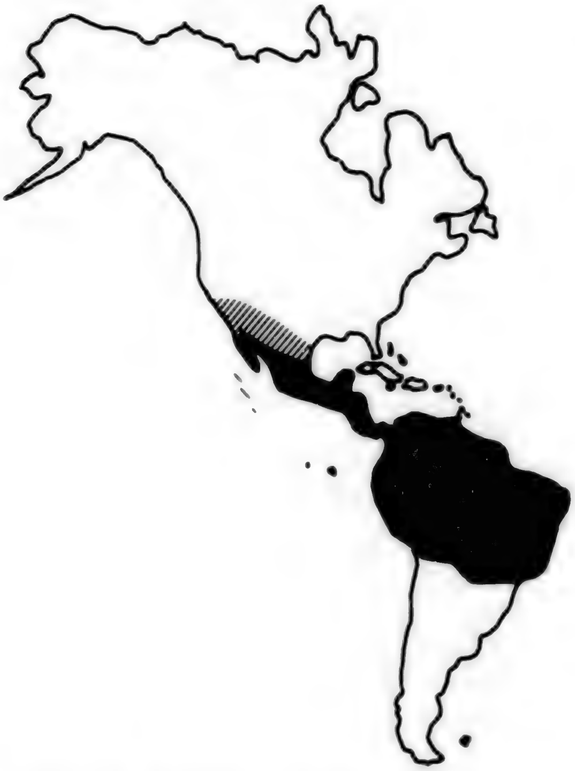
Phalaenoptilus nuttallii
Poor-will



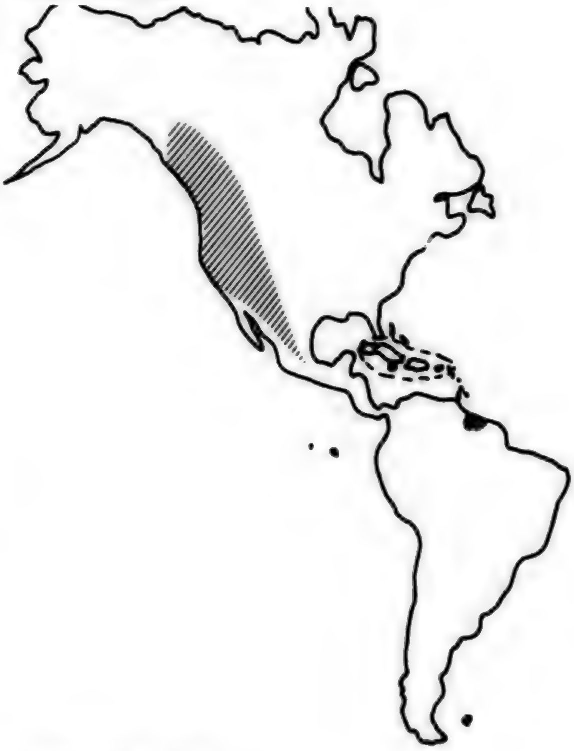
Chordeiles minor
Common Nighthawk



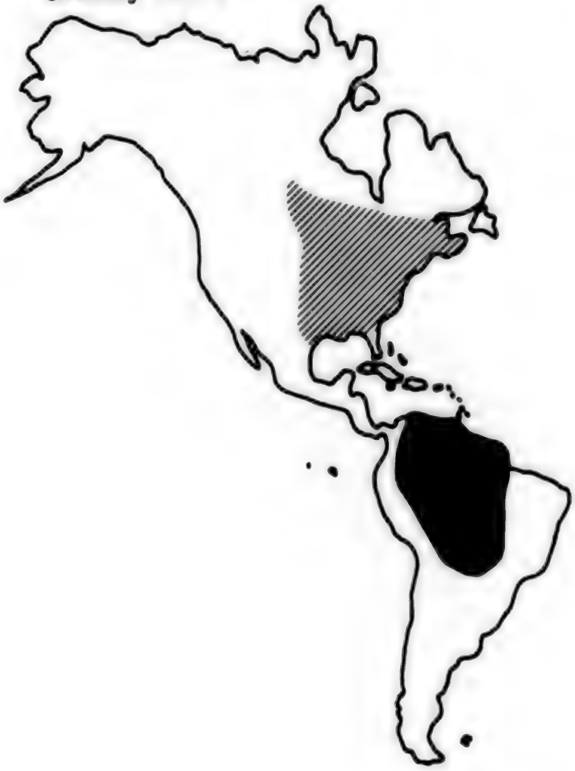
Chordeiles acutipennis
Lesser Nighthawk



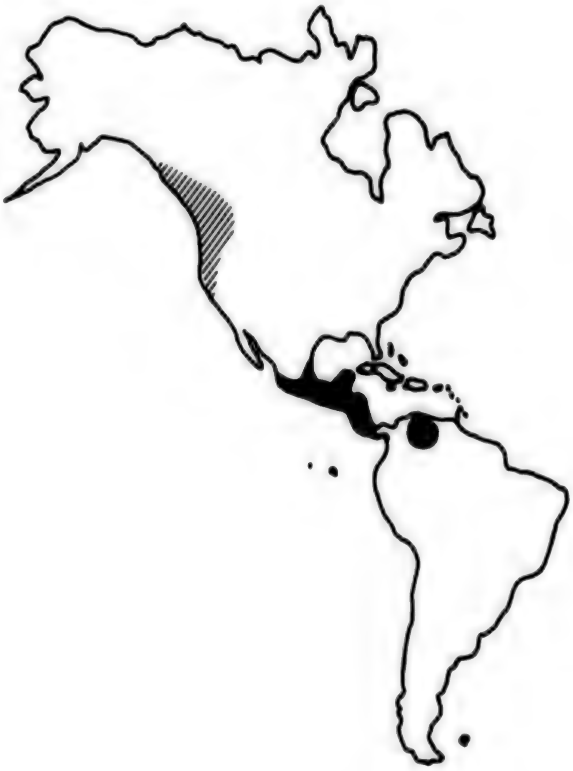
Cypseloides niger - winter range poorly known; irregular distribution within breeding range
Black Swift



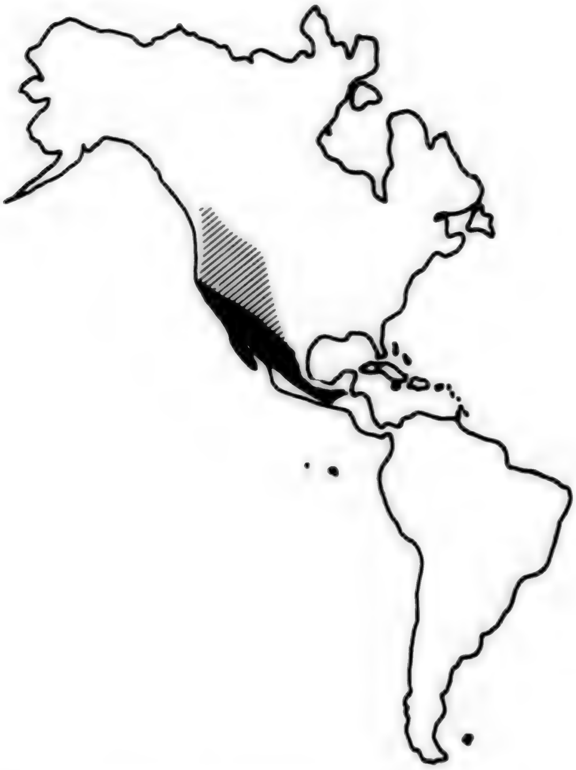
Chaetura pelagica - includes chapmani; winter range not well known; records from Chile (1885)
Chimney Swift



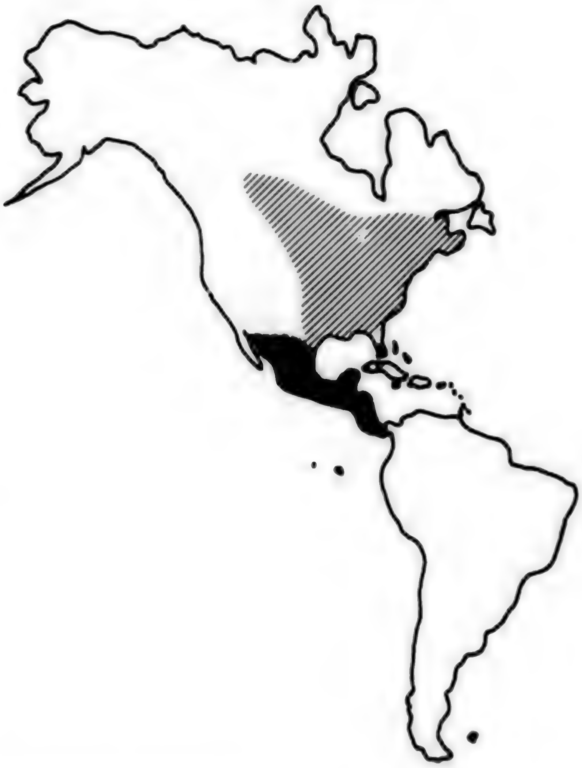
Chaetura vauxi
Vaux's Swift



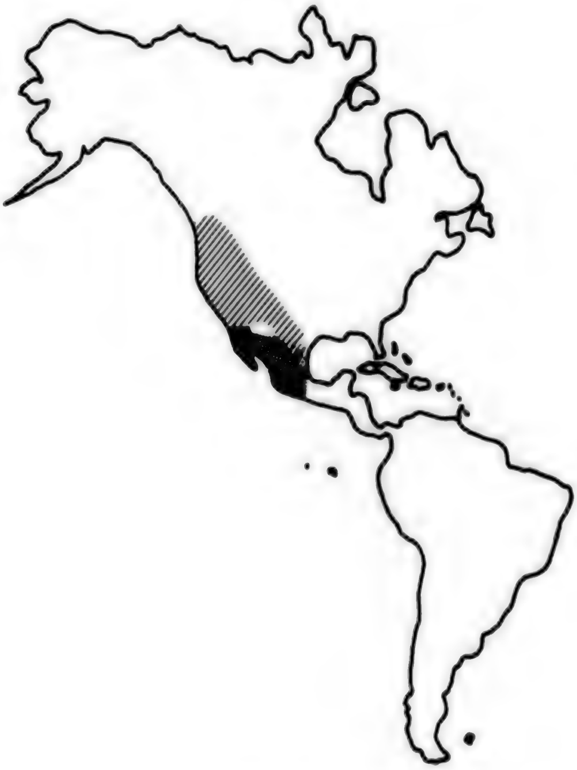
Aeronautes saxatalis
White-throated Swift



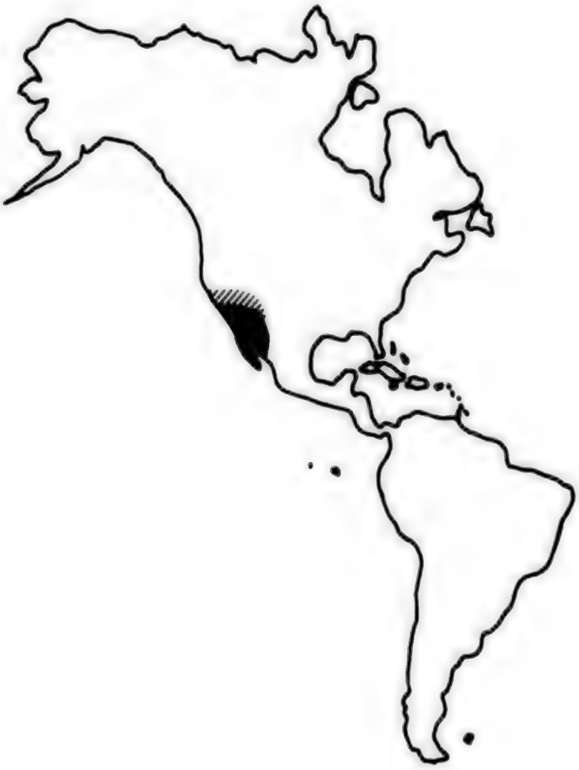
Archilochus colubris
Ruby-throated Hummingbird



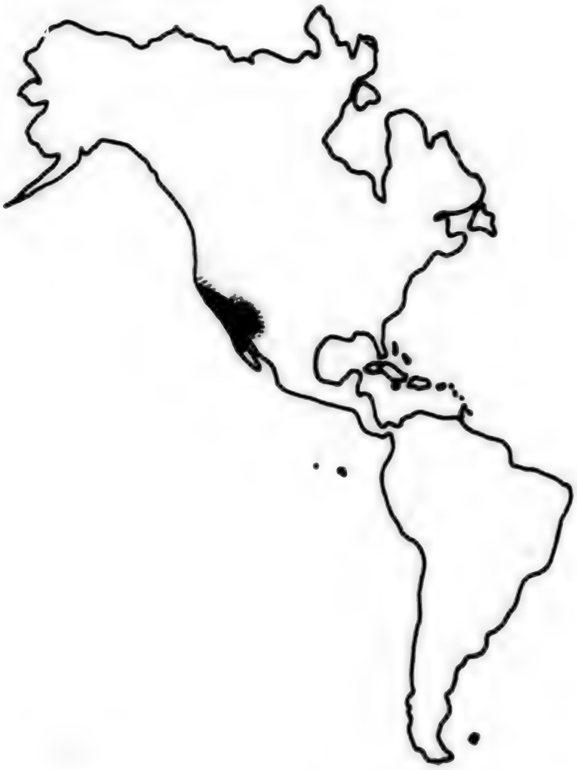
Archilochus alexandri
Black-chinned Hummingbird



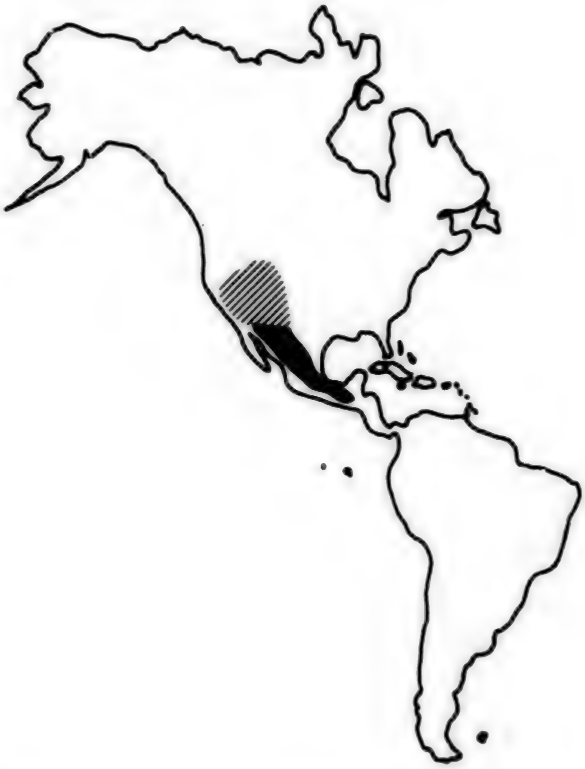
Calypte costae
Costa's Hummingbird



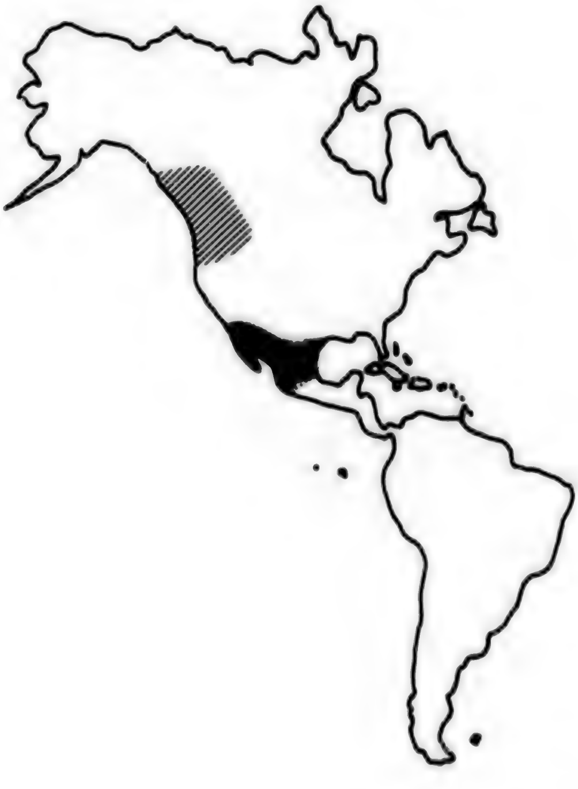
Calypte anna
Anna's Hummingbird



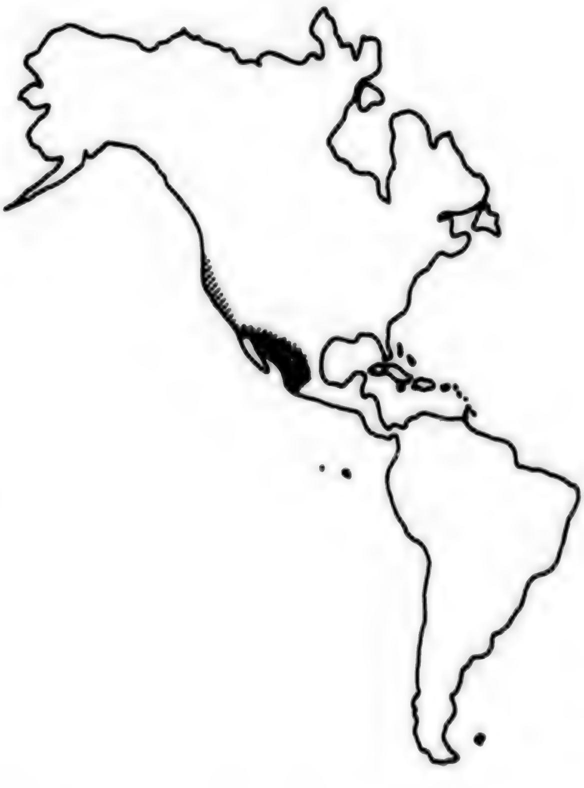
Selasphorus platycercus
Broad-tailed Hummingbird



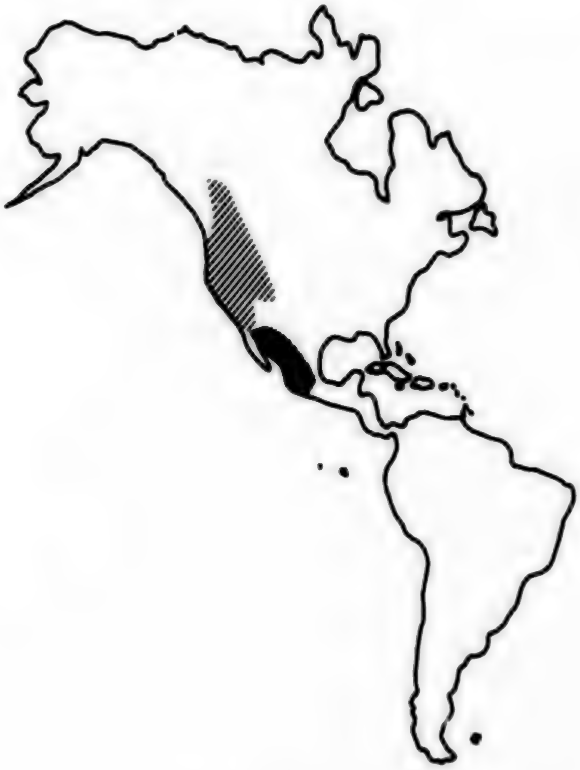
Selasphorus rufus
Rufous Hummingbird



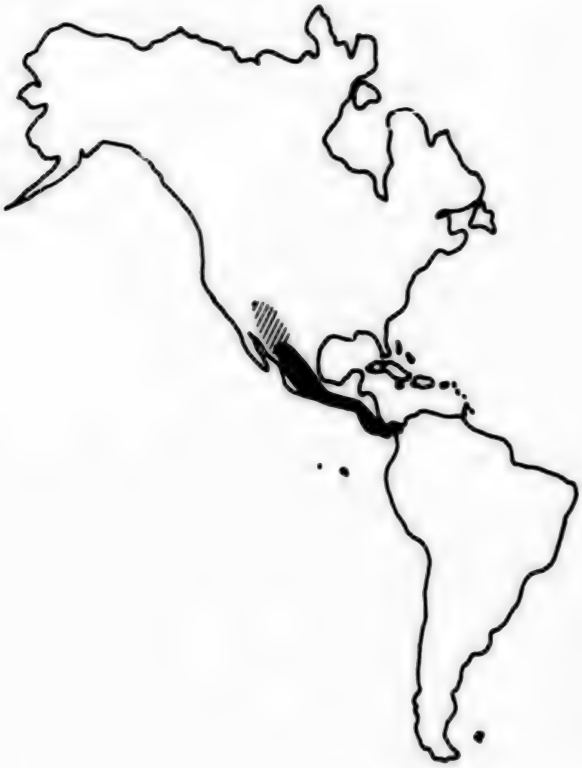
Selasphorus sasin
Allen's Hummingbird



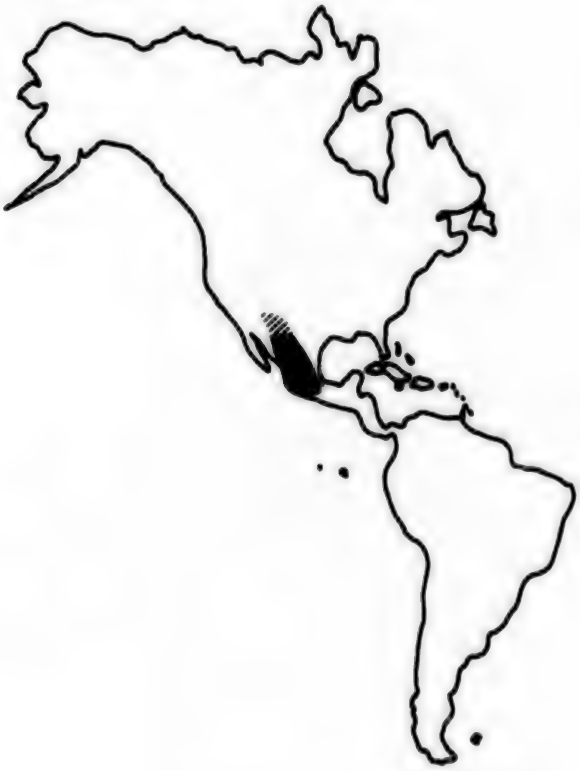
Stellula calliope
Calliope Hummingbird



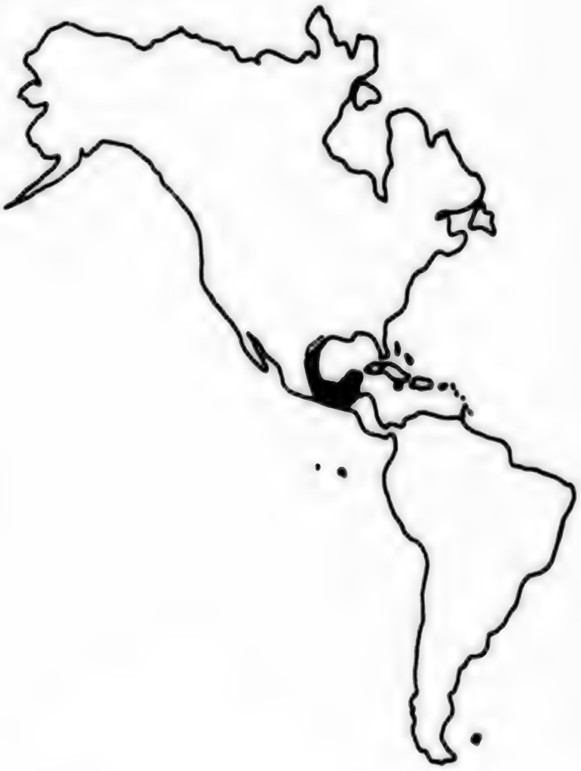
Eugenes fulgens
Rivoli's Hummingbird



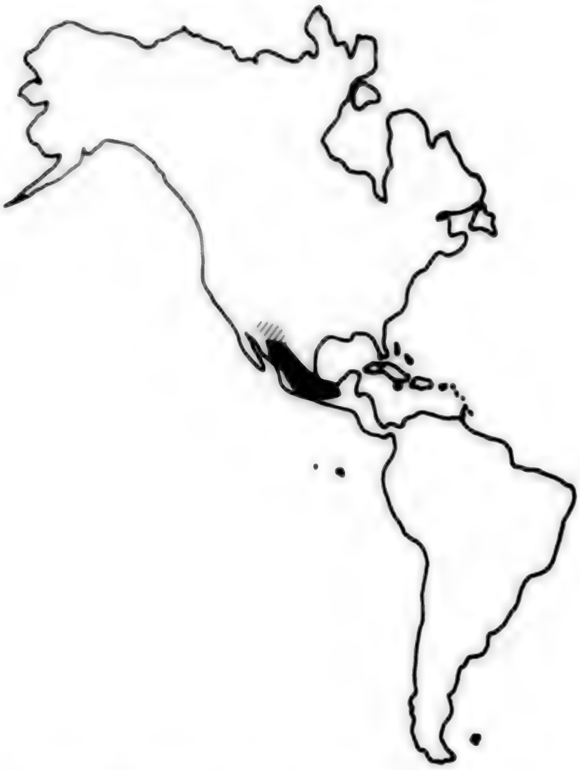
Lampornis clemenciae
Blue-throated Hummingbird



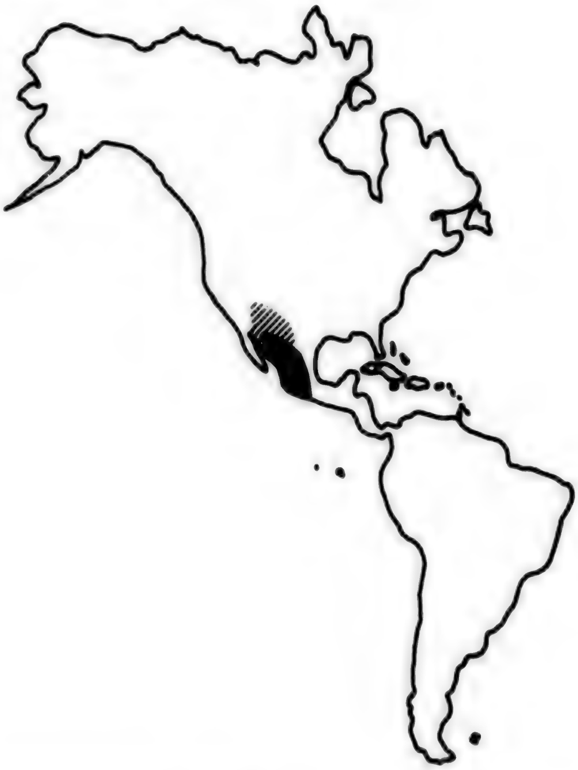
Amazilia yucatanensis
Buff-bellied Hummingbird



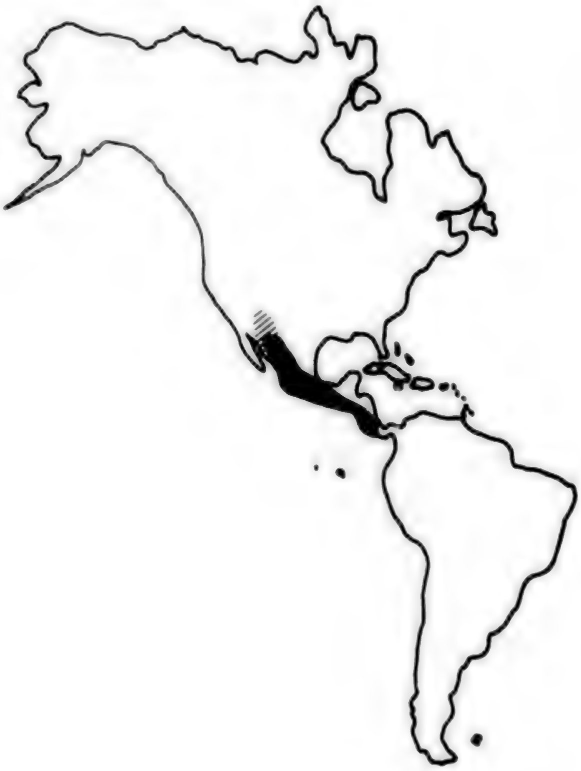
Amazilia verticalis
Violet-crowned Hummingbird



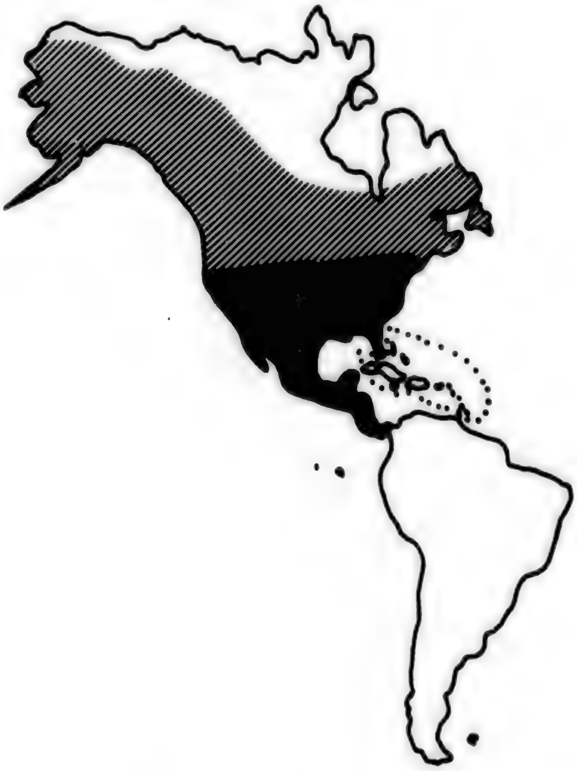
Cynanthus latirostris
Broad-billed Hummingbird



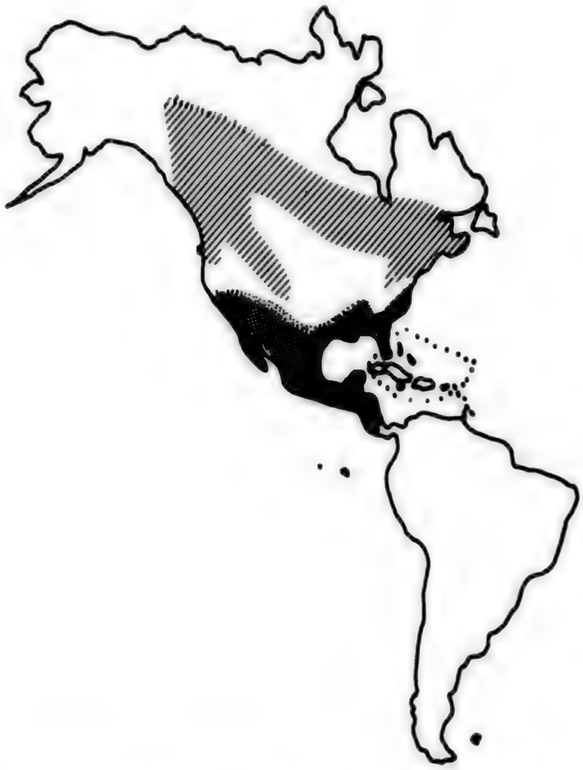
Trogon elegans
Coppery-tailed Trogon



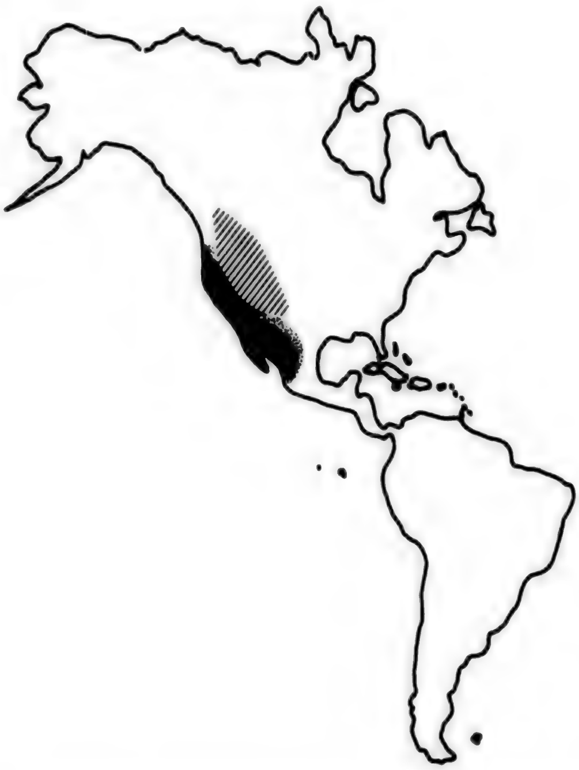
Megaceryle alcyon
Belted Kingfisher



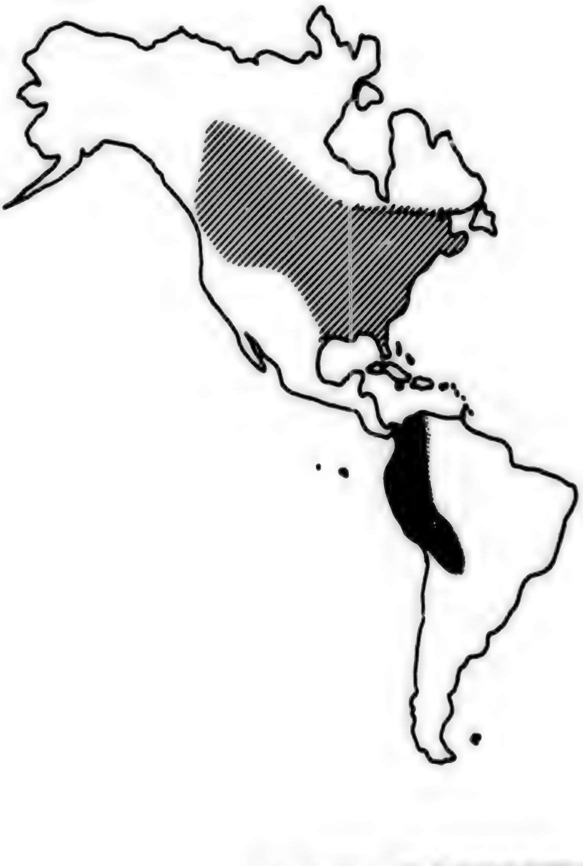
Sphyrapicus varius
Yellow-bellied Sapsucker



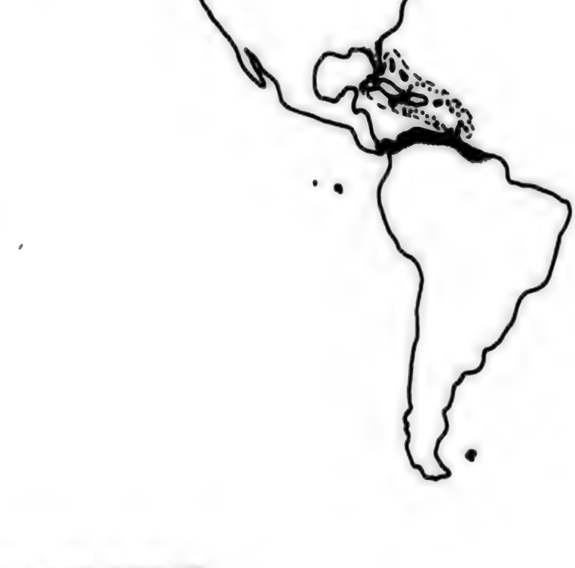
Sphyrapicus thyroideus
Williamson's Sapsucker



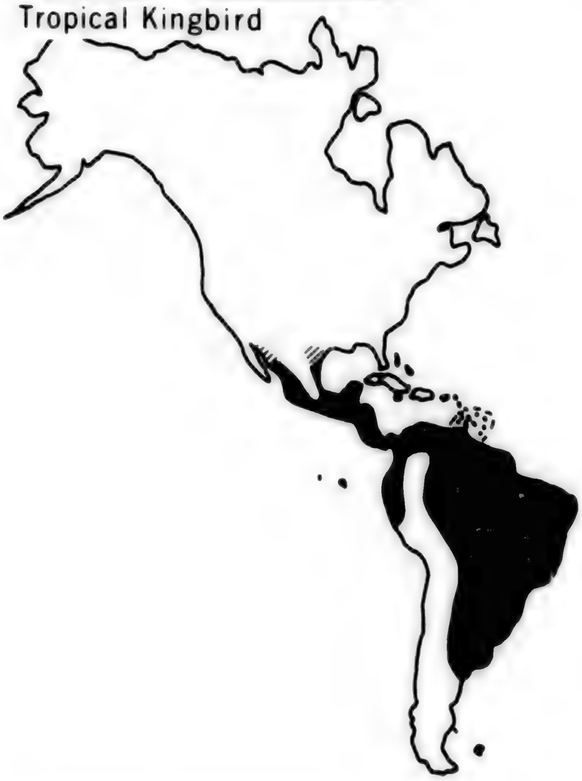
Tyrannus tyrannus
Eastern Kingbird



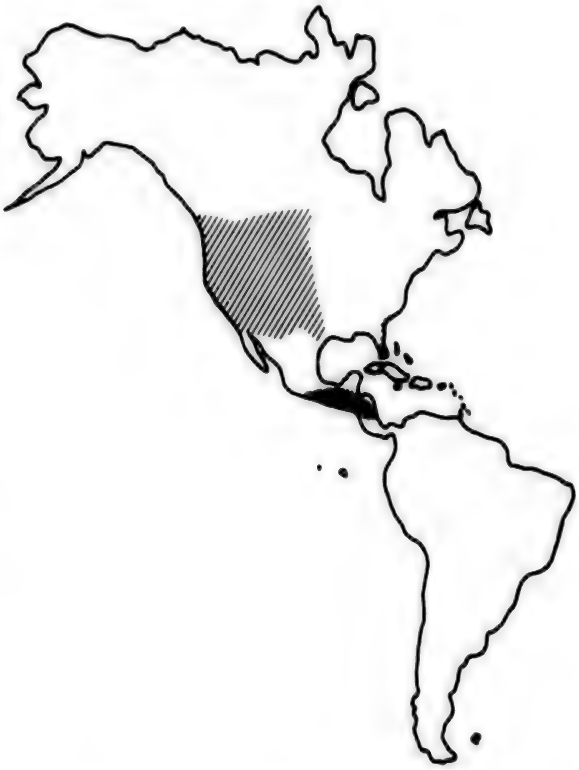
Tyrannus dominicensis - occasionally breeds in South America winter range (886)
Gray Kingbird



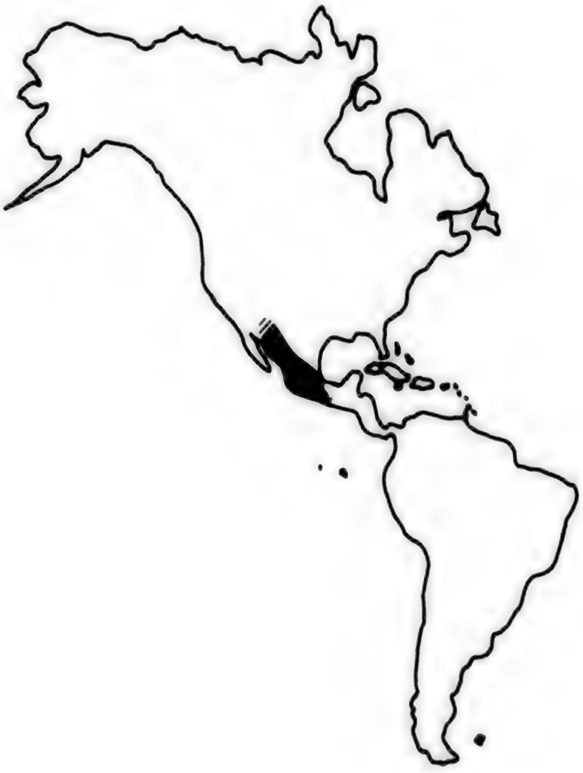
Tyrannus melancholicus - may be 2 species - couchii & melancholicus
Tropical Kingbird



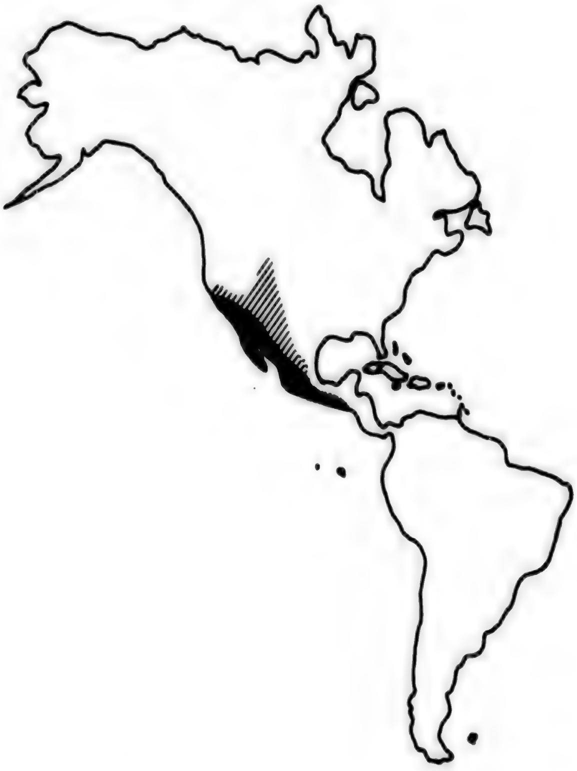
Tyrannus verticalis
Western Kingbird



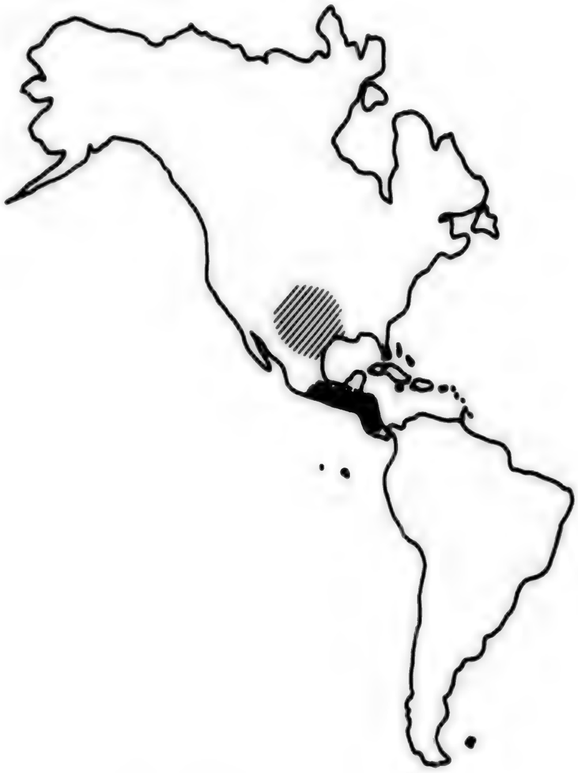
Tyrannus crassirostris
Thick-billed Kingbird



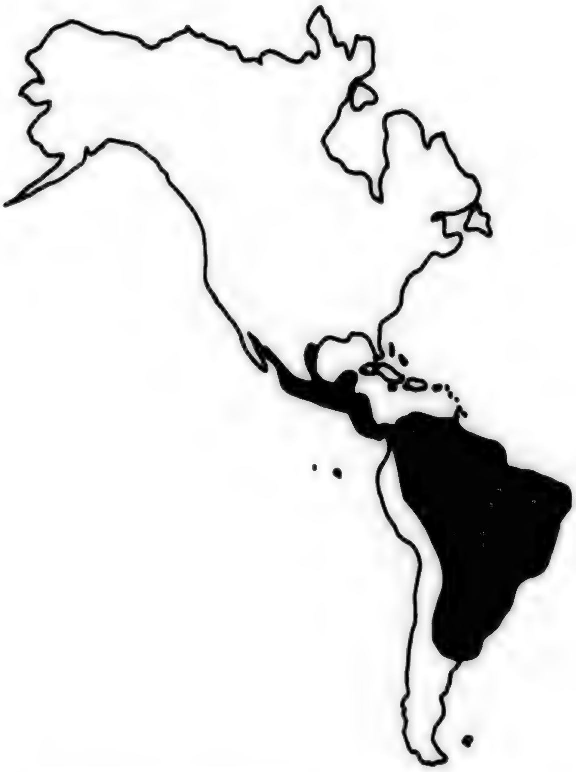
Tyrannus voiferans
Cassin's Kingbird



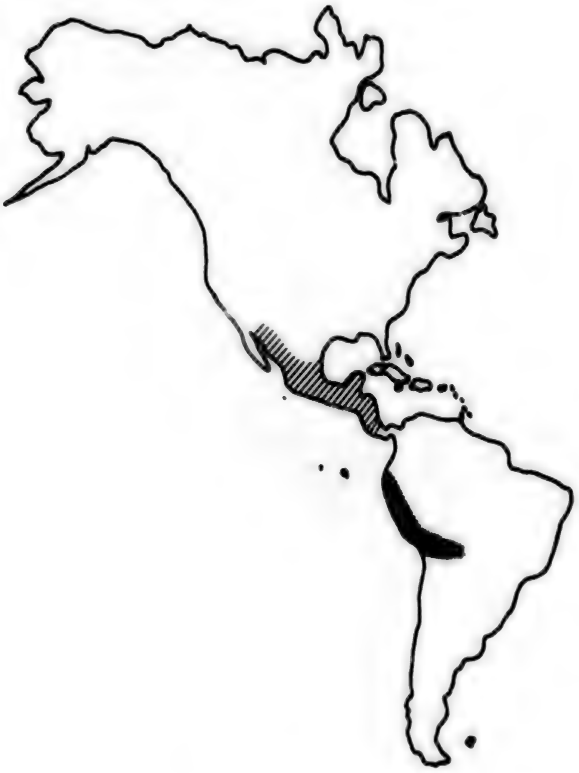
Muscivora forficata
Scissor-tailed Flycatcher



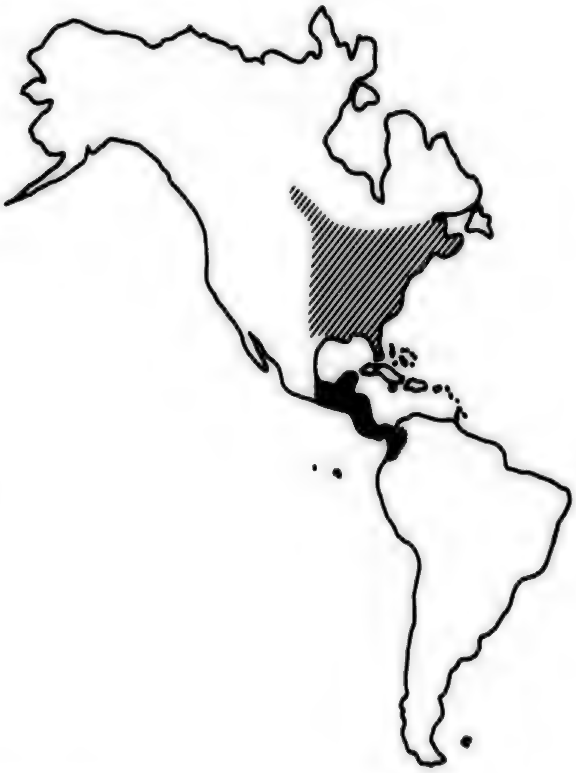
Pitangus sulphuratus
Kiskadee Flycatcher



Myiodynastes luteiventris
Sulphur-bellied Flycatcher

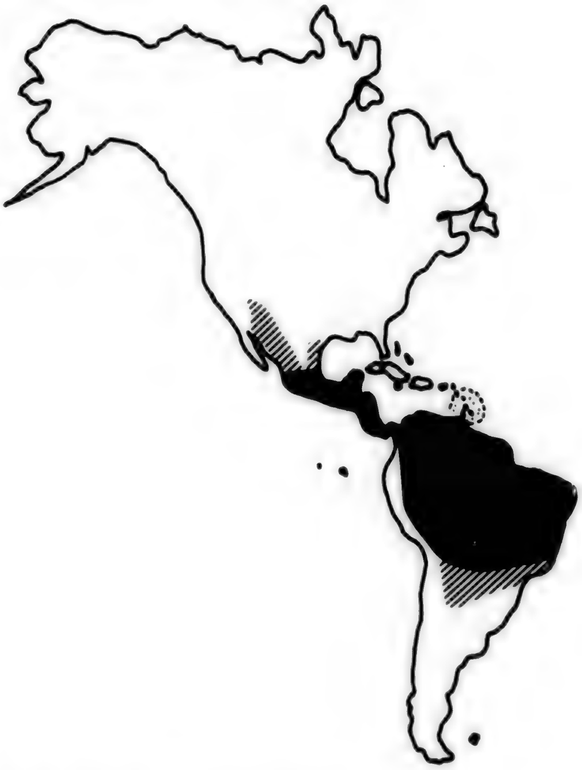


Myiarchus crinitus
Great Crested Flycatcher



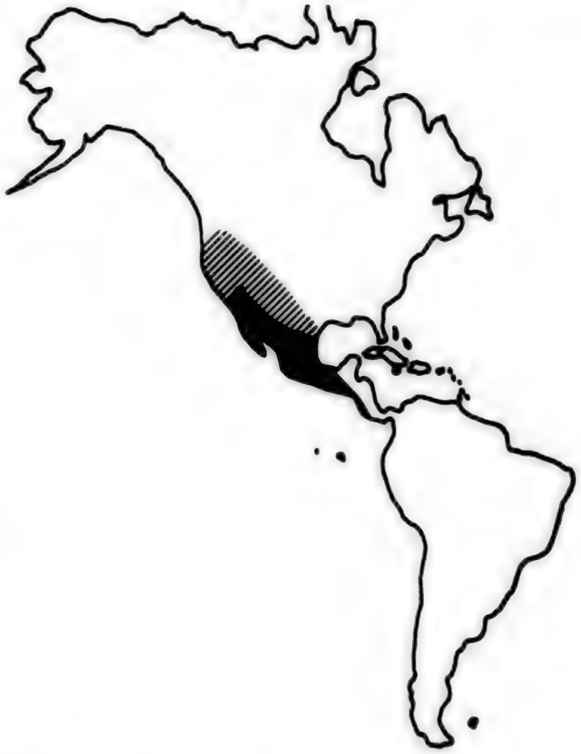
Myiarchus tyrannulus

Wied's Crested Flycatcher



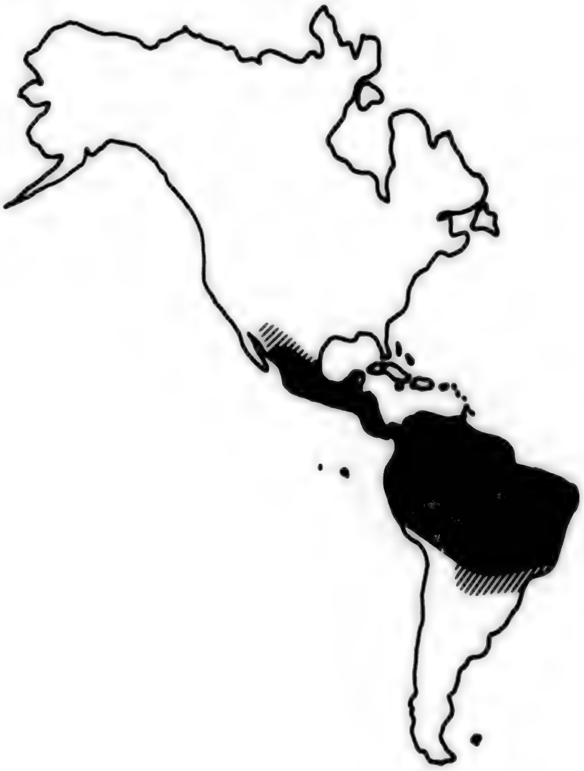
Myiarchus cinerascens - includes nuttingi; casual to Costa Rica

Ash-throated Flycatcher



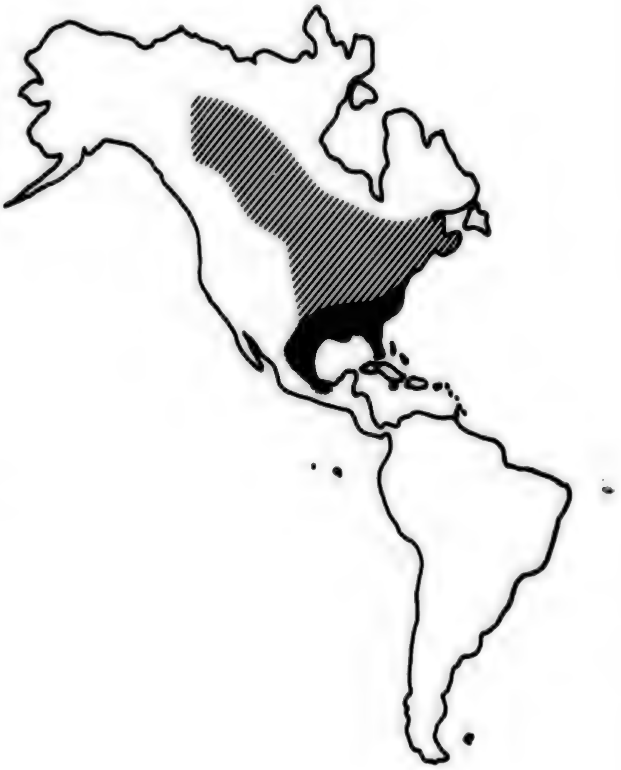
Myiarchus tuberculifer

Olivaceous Flycatcher

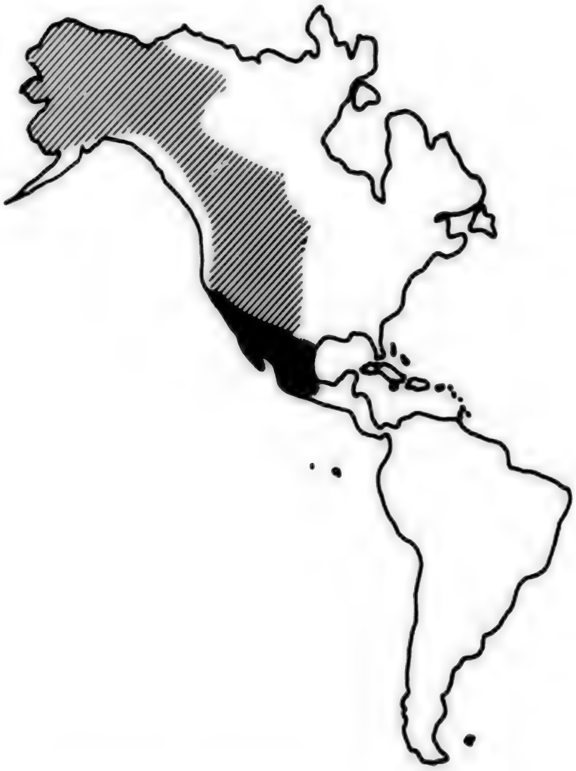


Sayornis phobe

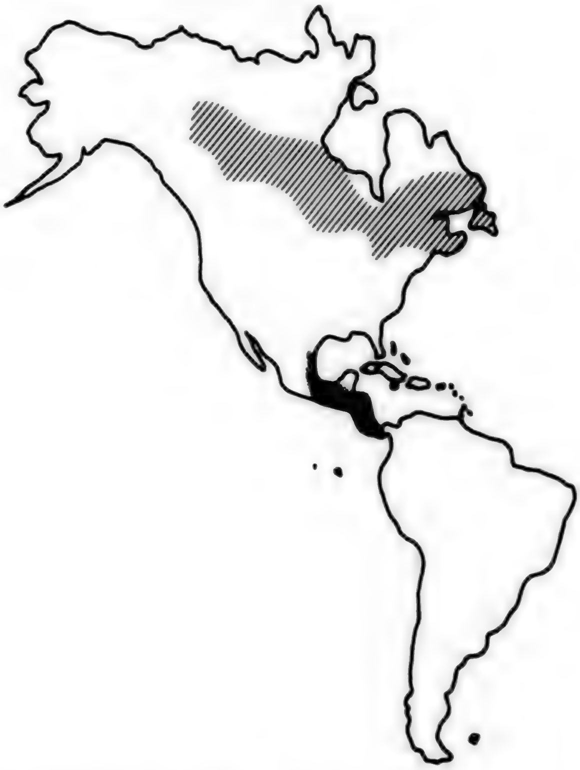
Eastern Phoebe



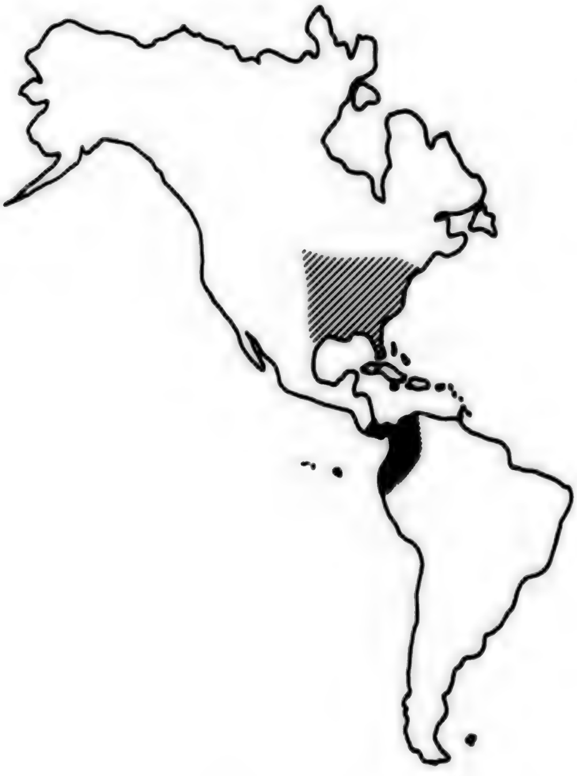
Sayornis saya
Say's Phoebe



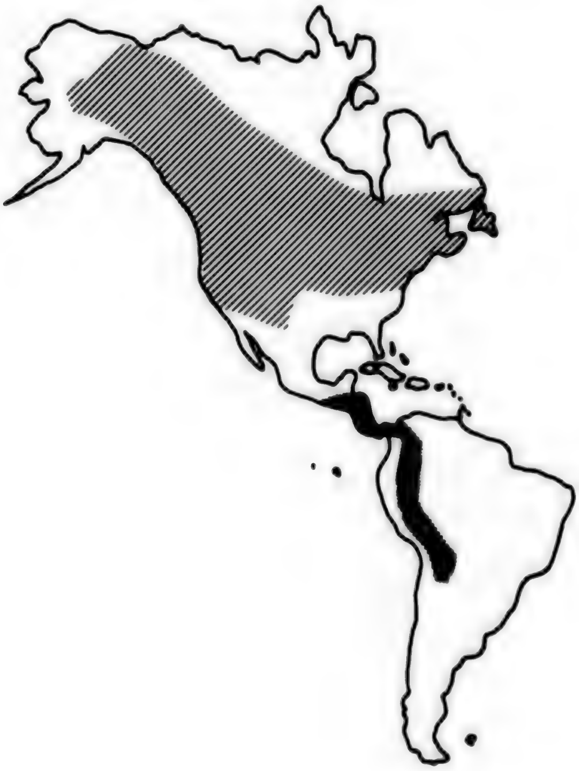
Empidonax flaviventris
Yellow-bellied Flycatcher



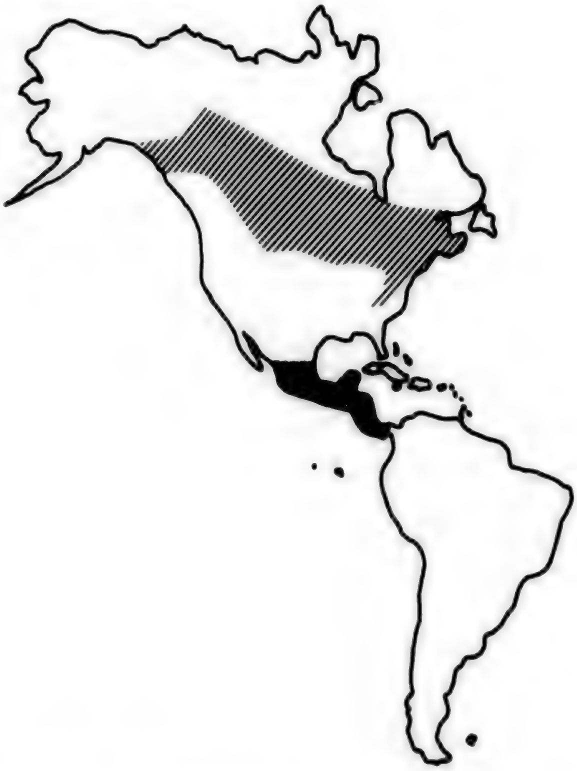
Empidonax virescens
Acadian Flycatcher



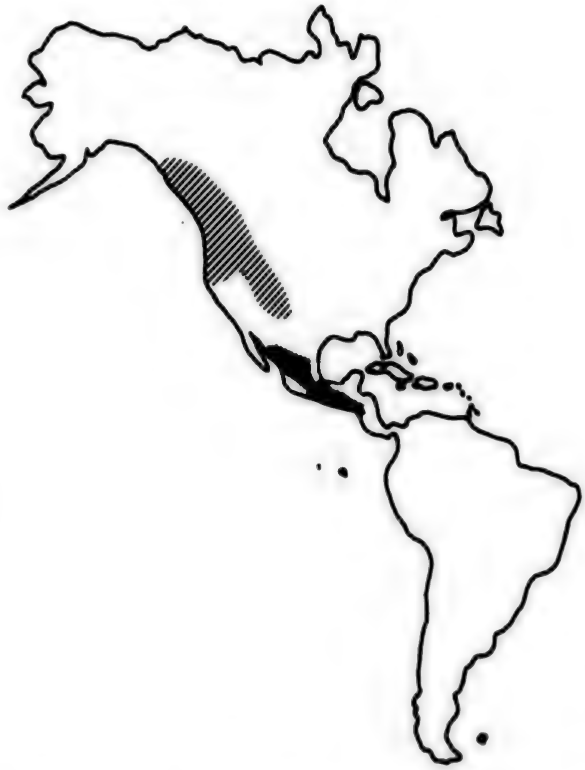
Empidonax traillii - includes *alnorum*
Traill's Flycatcher



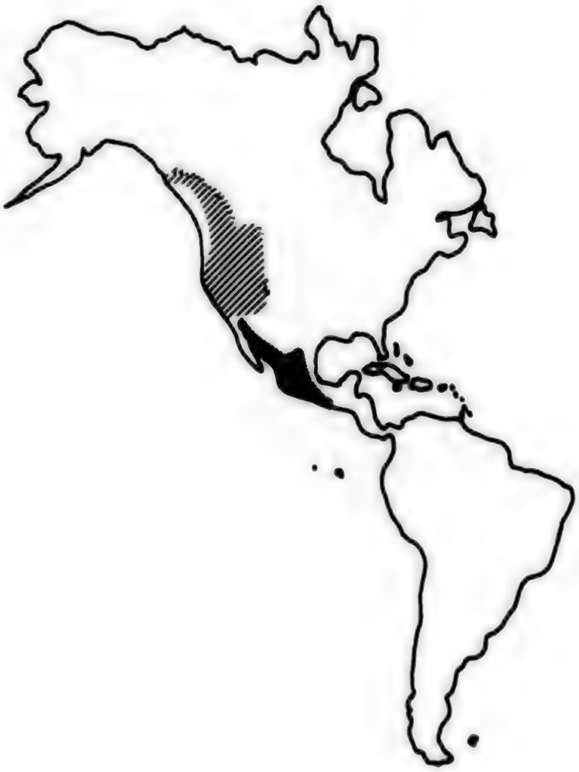
Empidonax minimus
Least Flycatcher



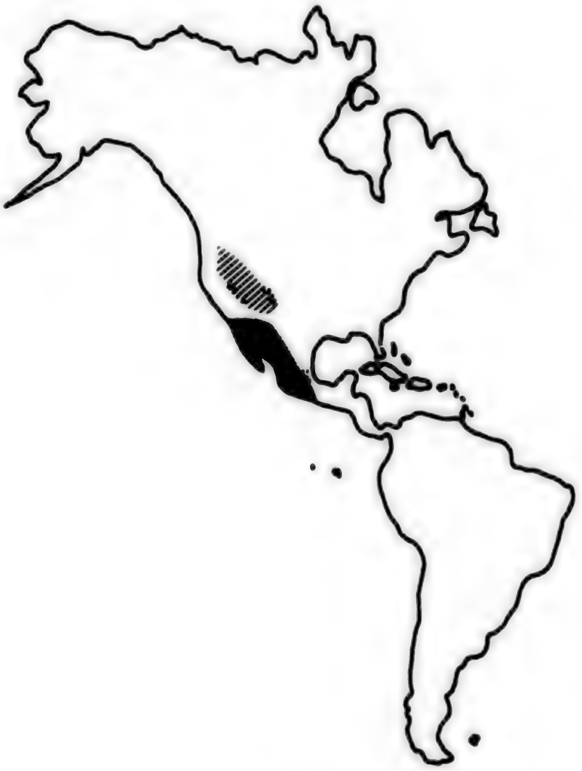
Empidonax hammondii
Hammond's Flycatcher



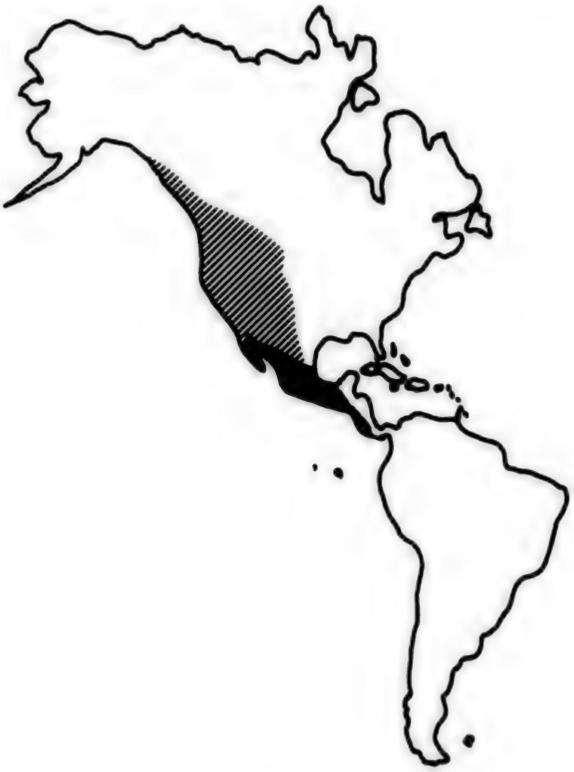
Empidonax oberholseri
Dusky Flycatcher



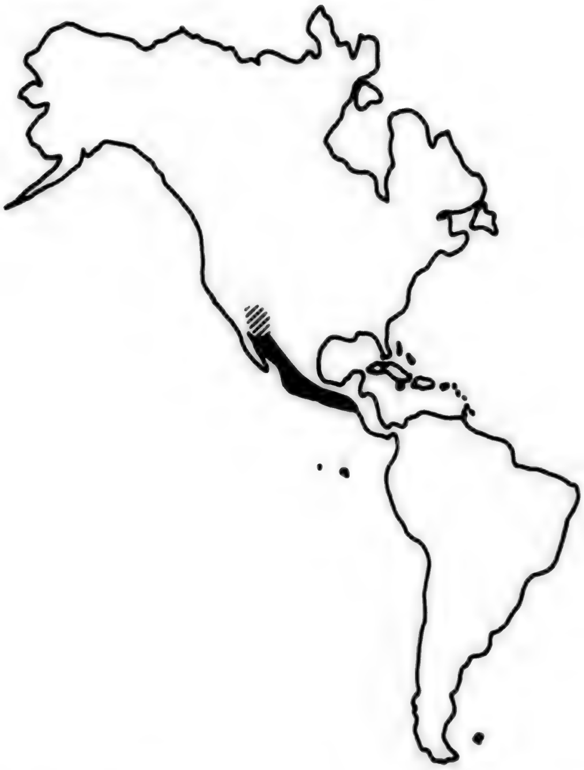
Empidonax wrightii
Gray Flycatcher



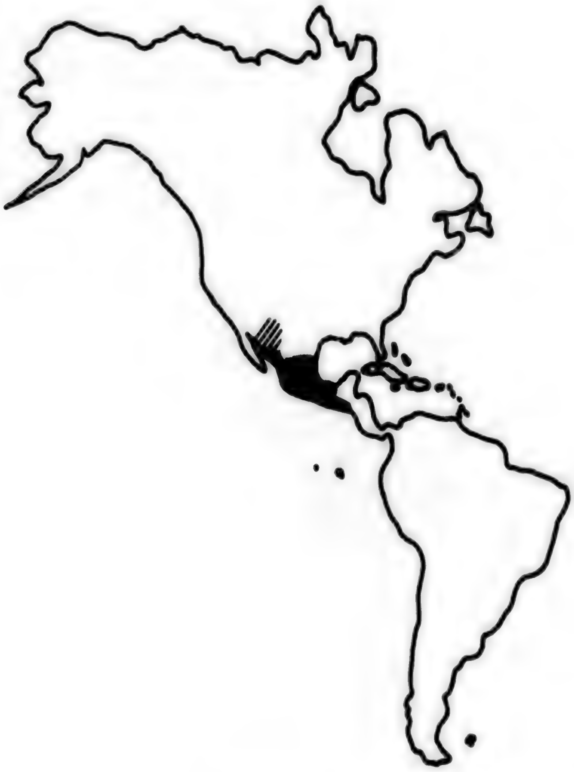
Empidonax difficilis - includes flavescens
Western Flycatcher



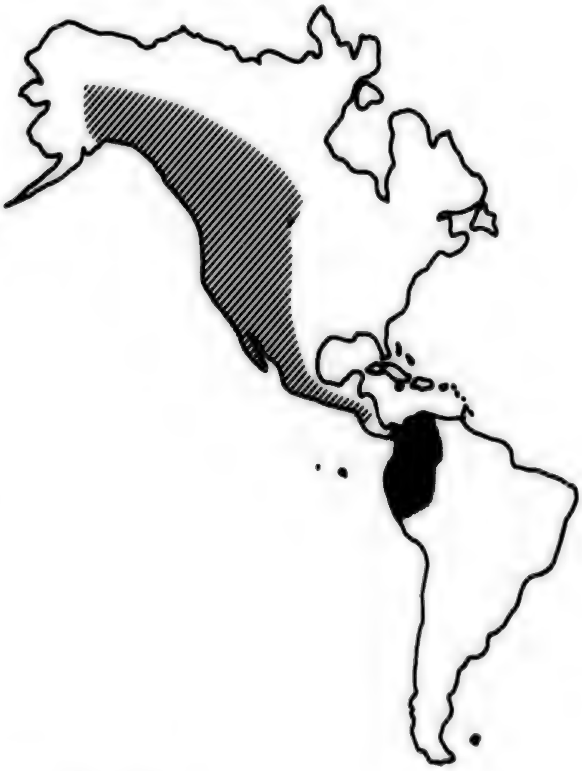
Empidonax fulvifrons
Buff-breasted Flycatcher



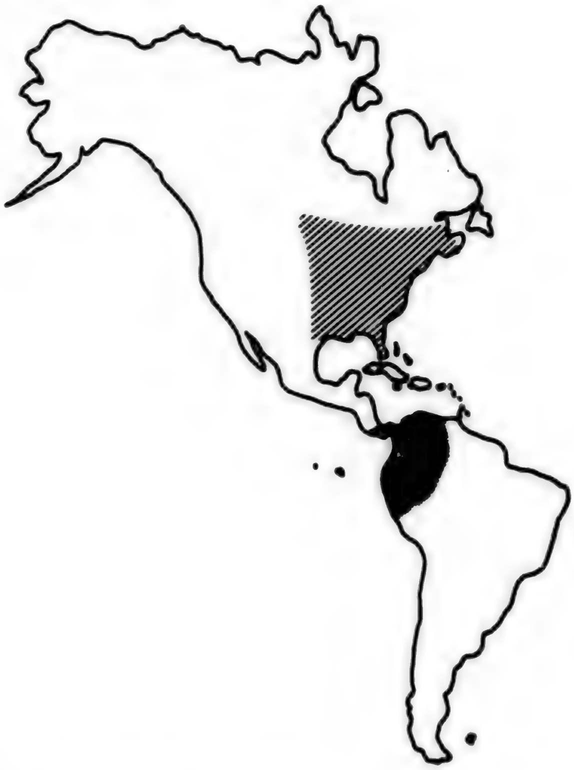
Contopus pertinax
Coues' Flycatcher



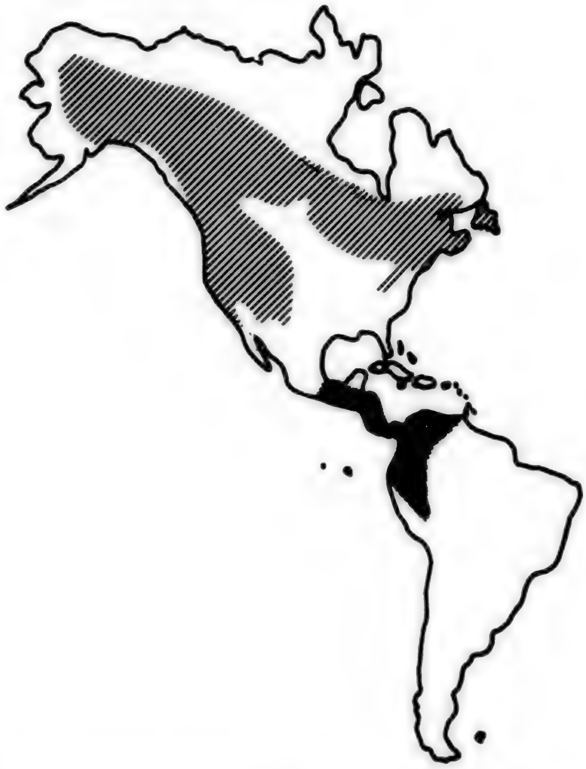
Contopus sordidulus
Western Wood Pewee



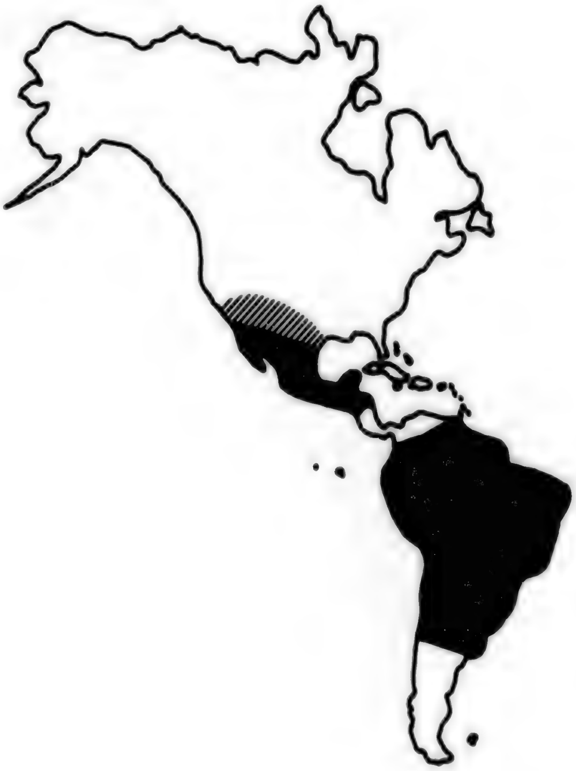
Contopus virens
Eastern Wood Pewee



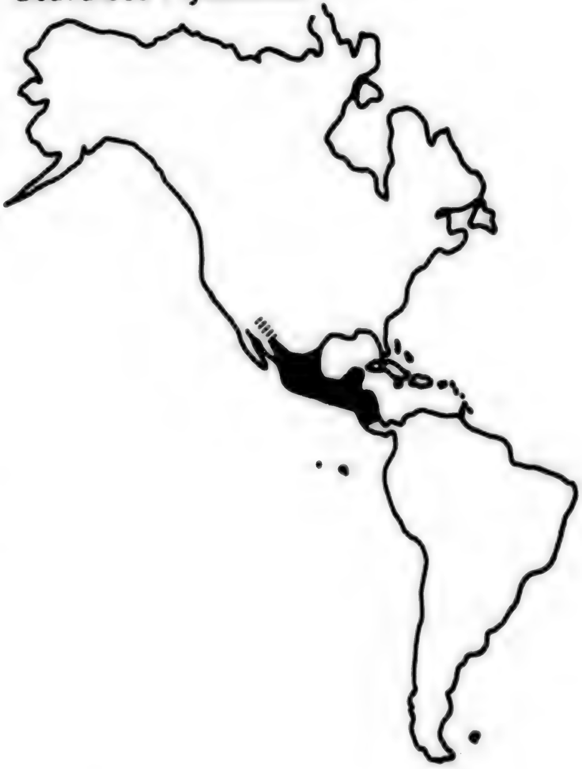
Nuttallornis borealis
Olive-sided Flycatcher



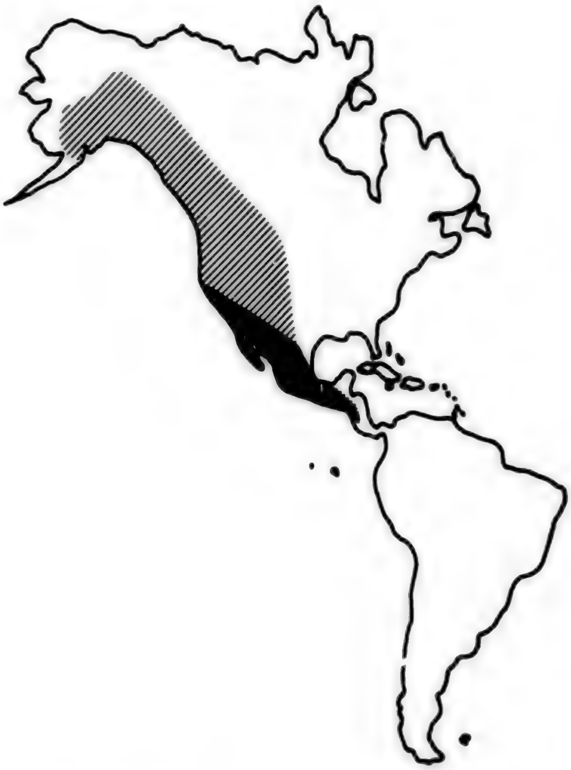
Pyrocephalus rubinus
Vermilion Flycatcher



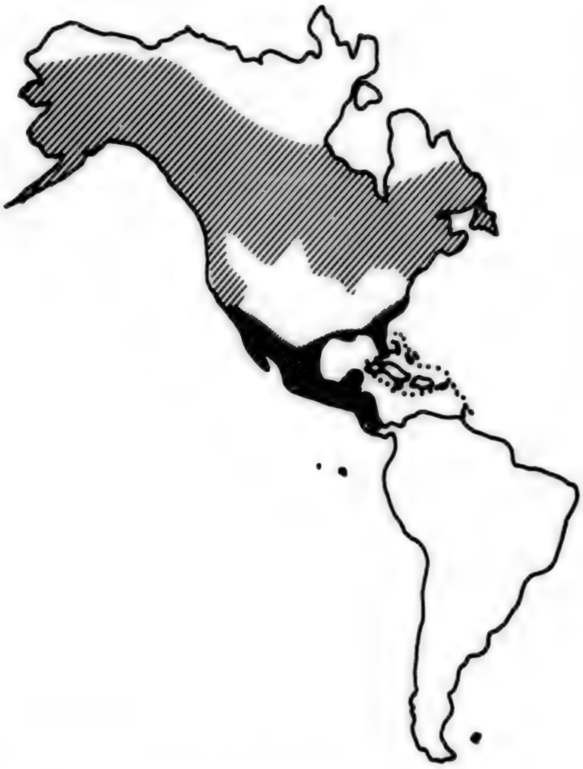
Camptostoma imberbe - may include **obsoletum** (886)
Beardless Flycatcher



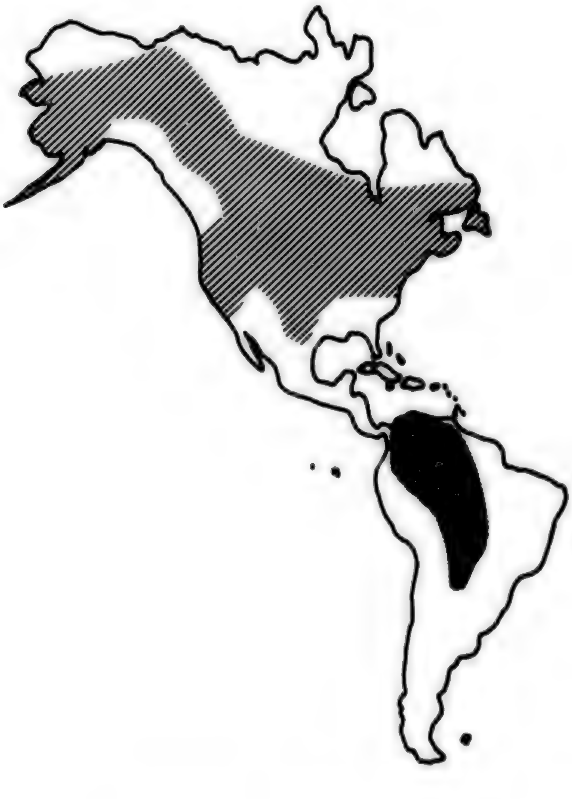
Tachycineta thalassina
Violet-green Swallow



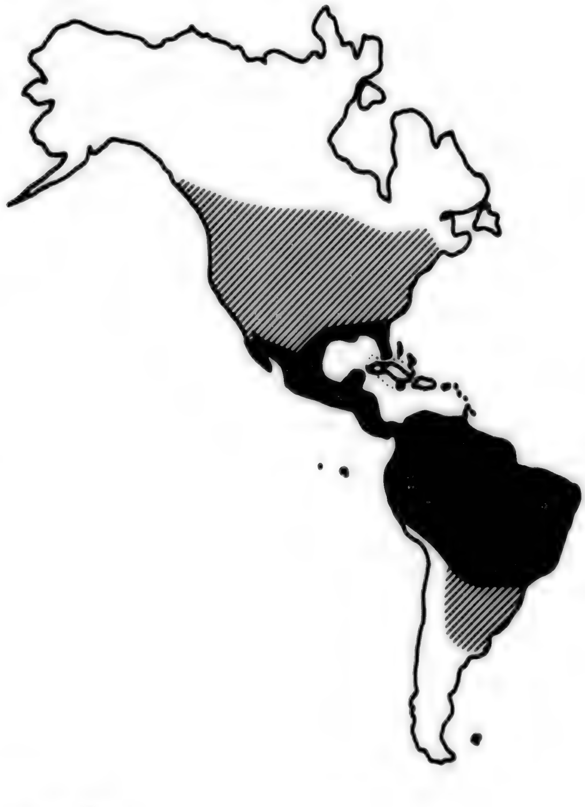
Iridoprocne bicolor
Tree Swallow



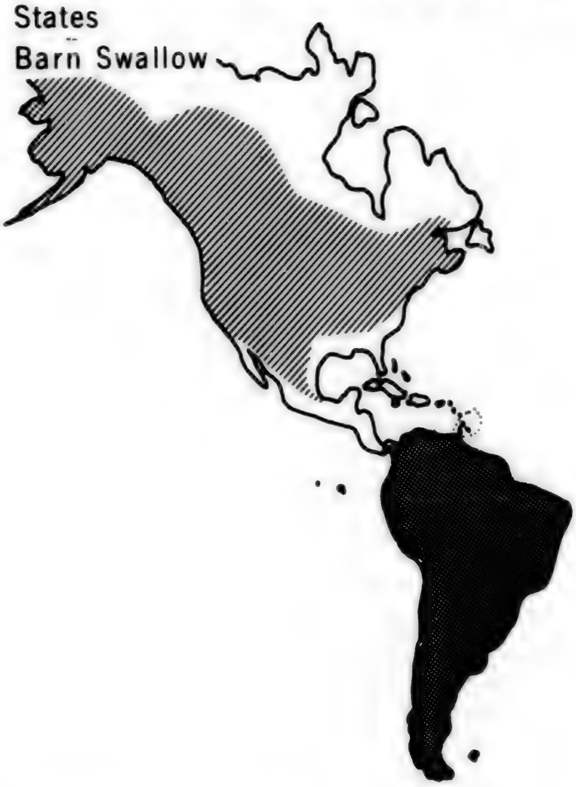
Riparia riparia
Bank Swallow



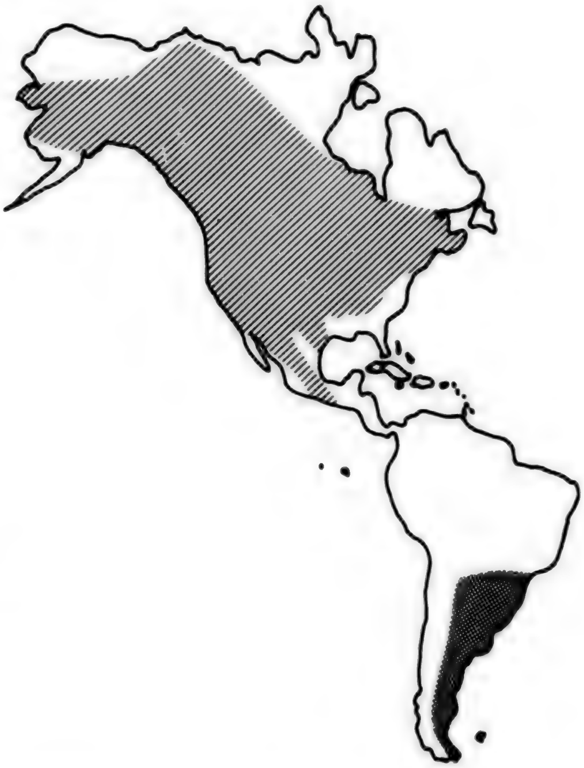
Stelgidopteryx ruficollis
Rough-winged Swallow



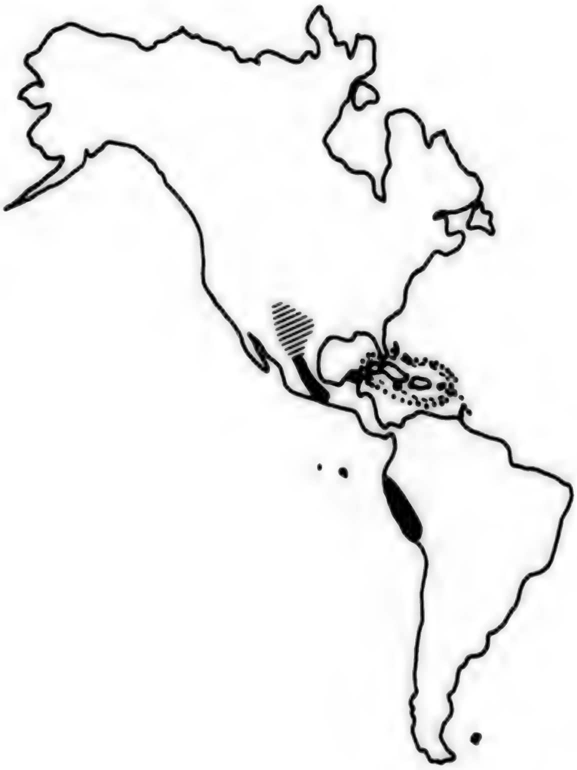
Hirundo rustica - winters irregularly throughout Middle America & S.W. United States
Barn Swallow



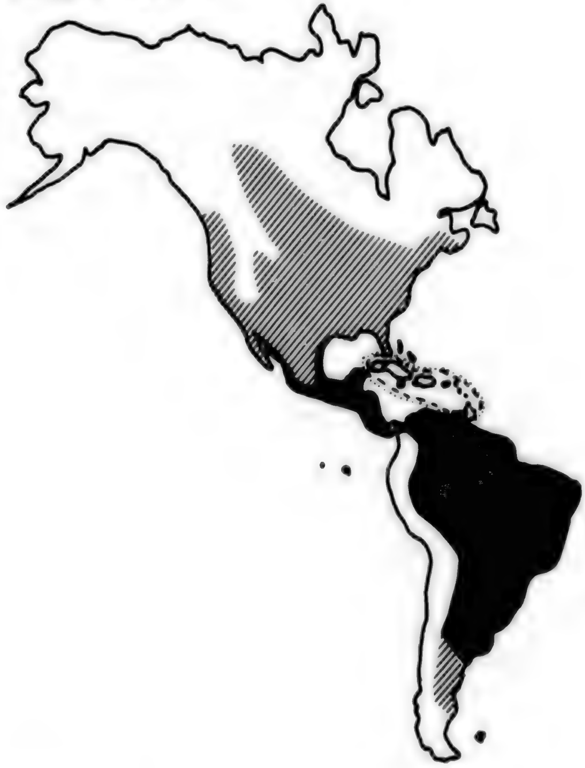
Petrochelidon pyrrhonota
Cliff Swallow



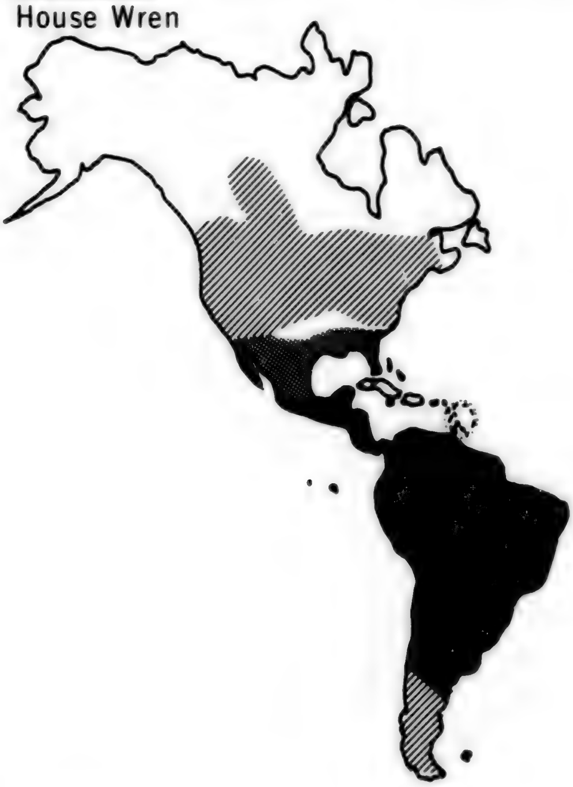
Petrochelidon fulva
Cave Swallow



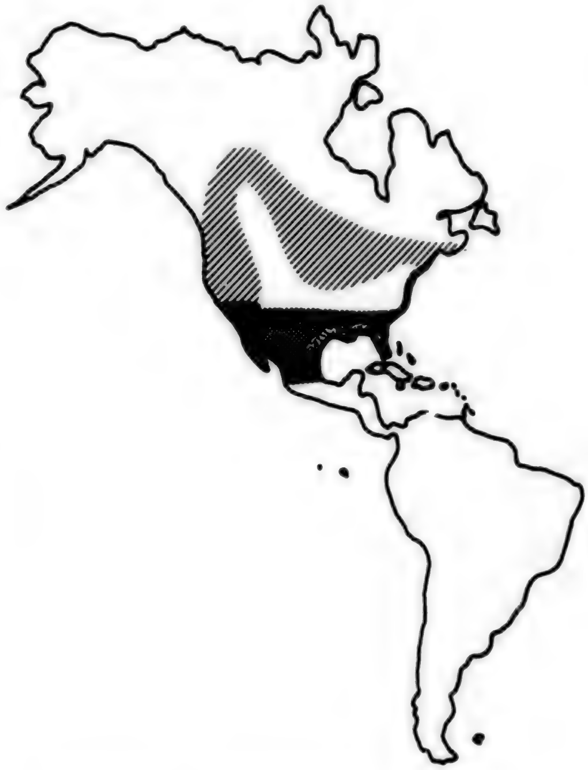
Progne subis - includes *dominicensis*, *modesta*, *chalybea*
Purple Martin



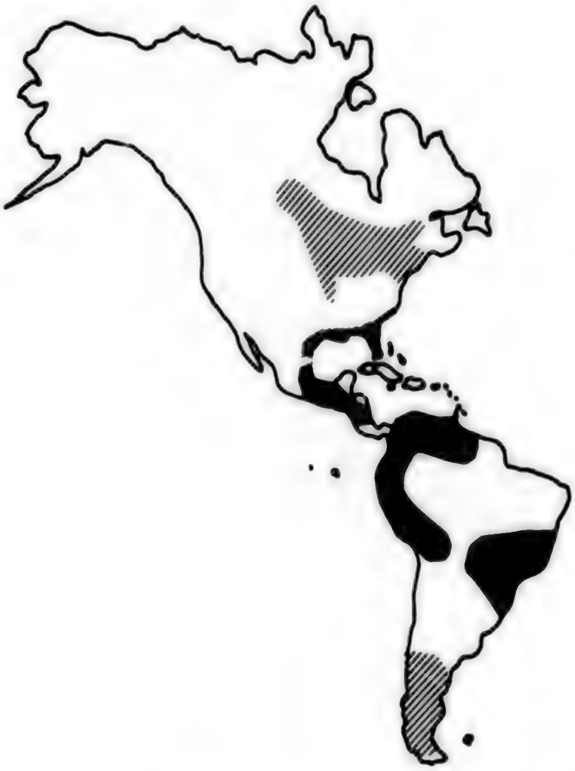
Troglodytes aedon - includes brunneicollis, musculus
House Wren



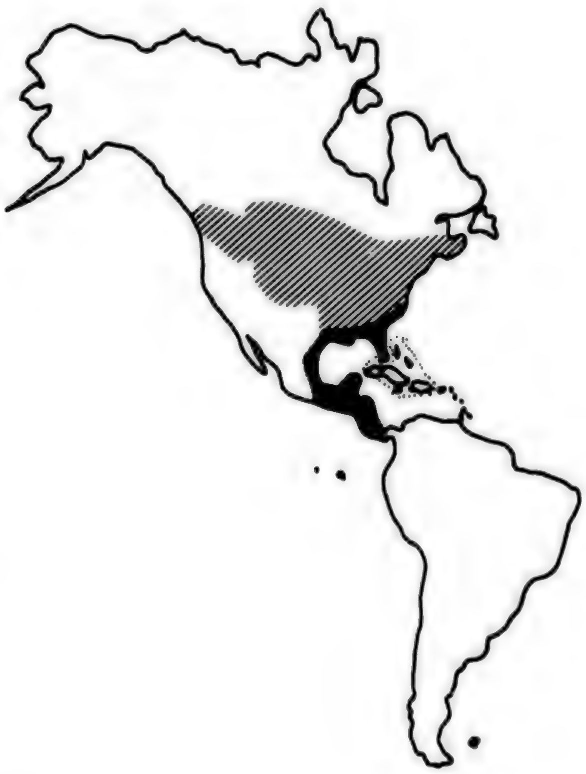
Cistothorus palustris
Long-billed Marsh Wren



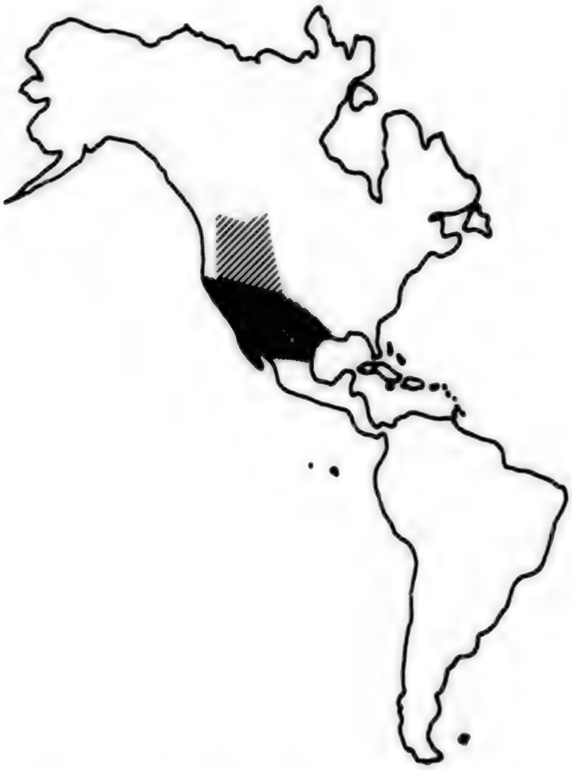
Cistothorus platensis
Short-billed Marsh Wren



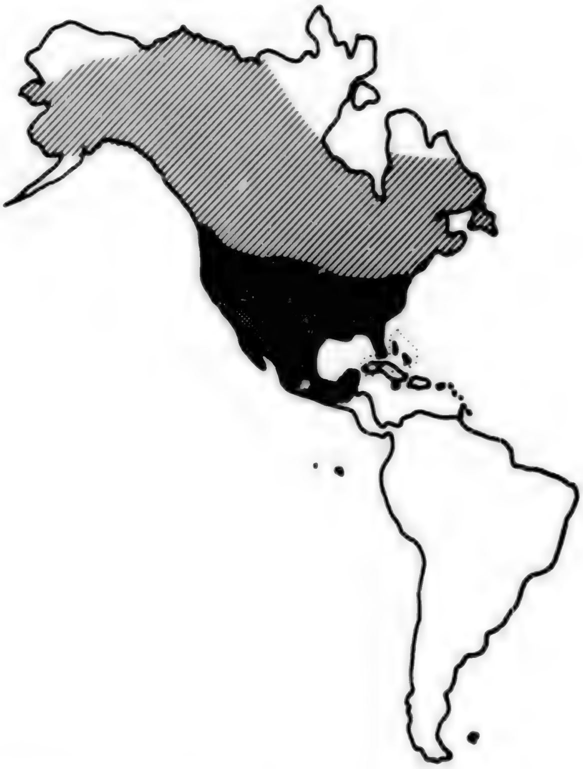
Dumtella carolinensis
Gray Catbird



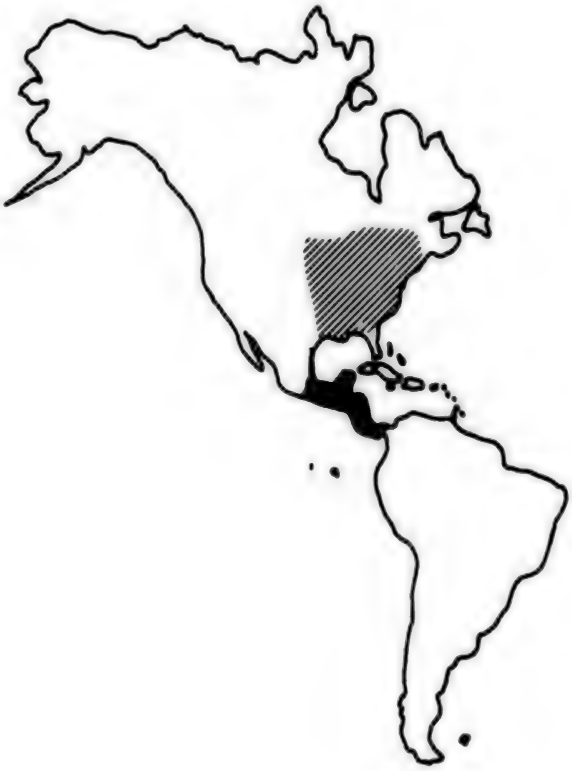
Oreoscoptes montanus
Sage Thrasher



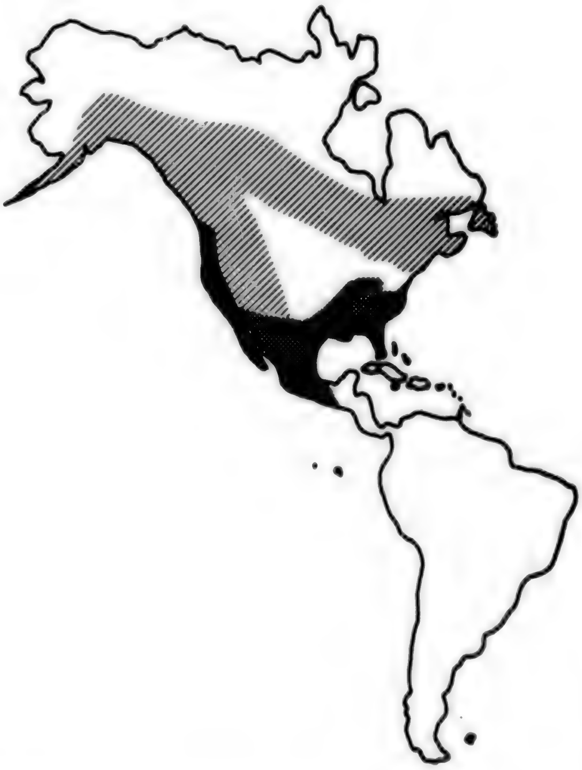
Turdus migratorius
American Robin



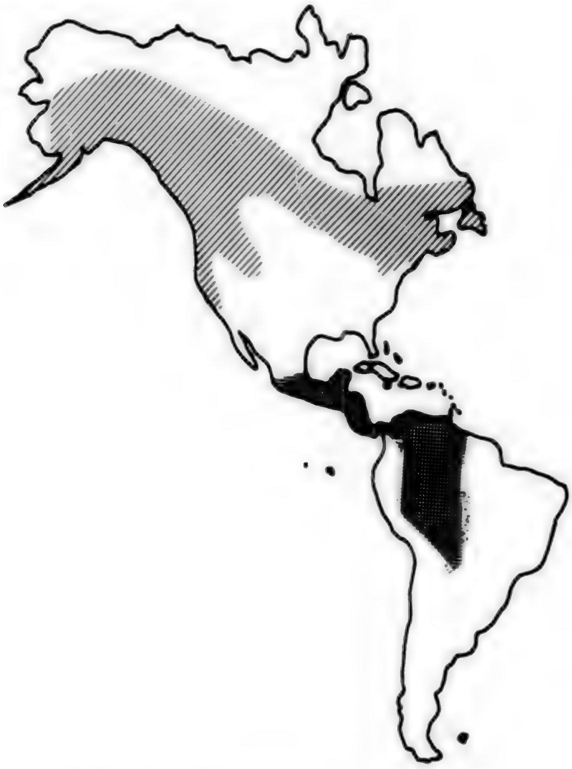
Hylocichla mustelina
Wood Thrush



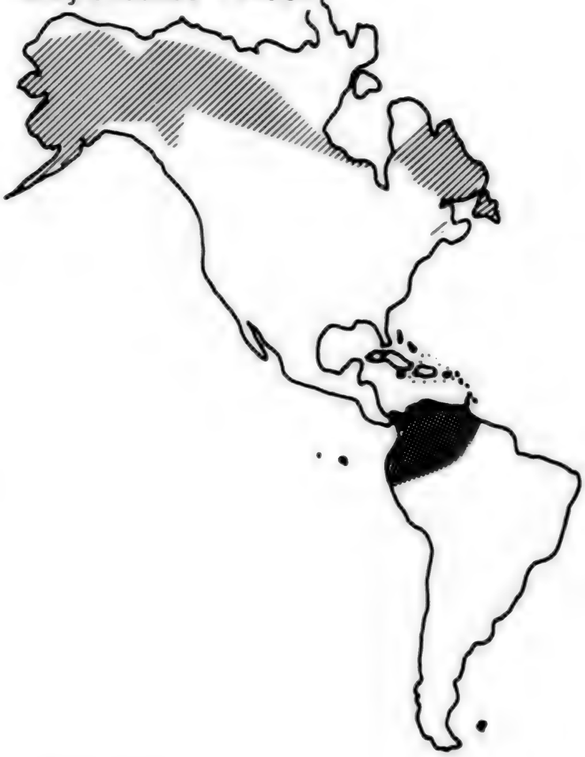
Catharus guttatus
Hermit Thrush



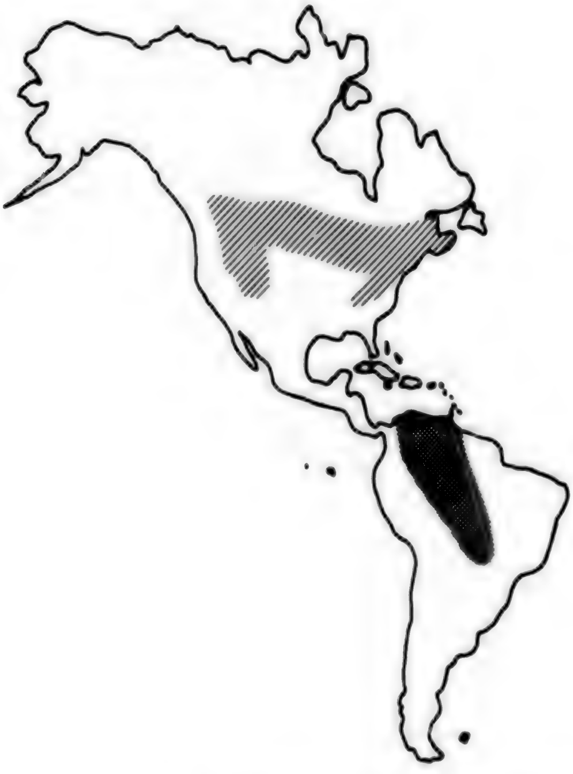
Catharus ustulatus
Swainson's Thrush



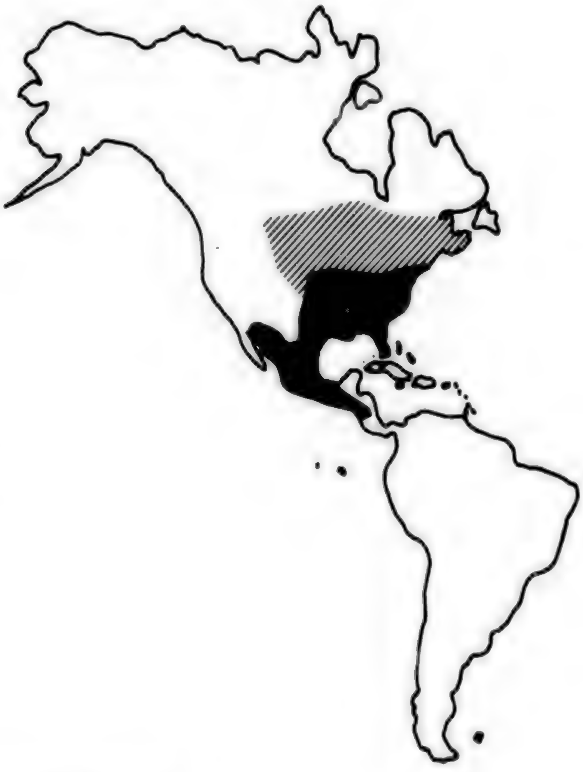
Catharus minimus - occasionally winters
N. to Costa Rica
Gray-cheeked Thrush



Catharus fuscescens
Veery

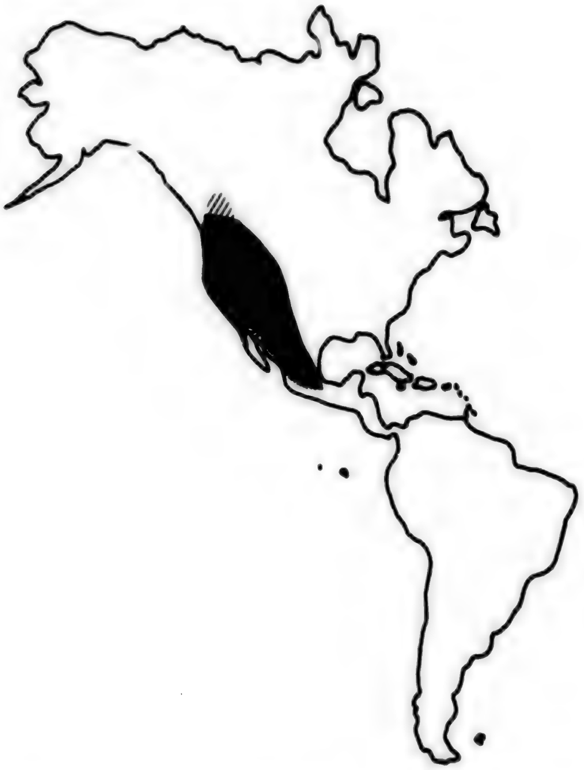


Sialia sialis
Eastern Bluebird



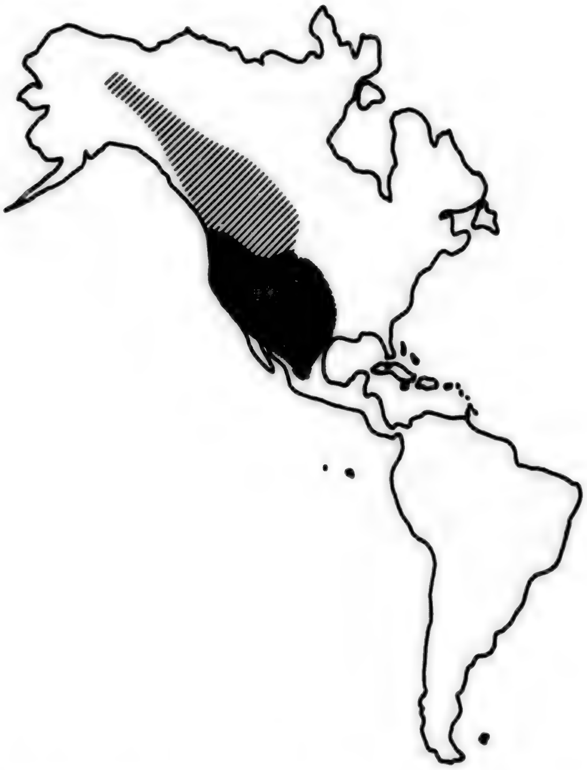
Sialia mexicana

Western Bluebird



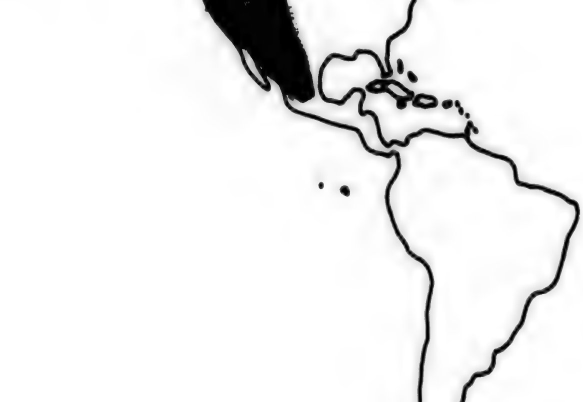
Sialia currucoides

Mountain Bluebird



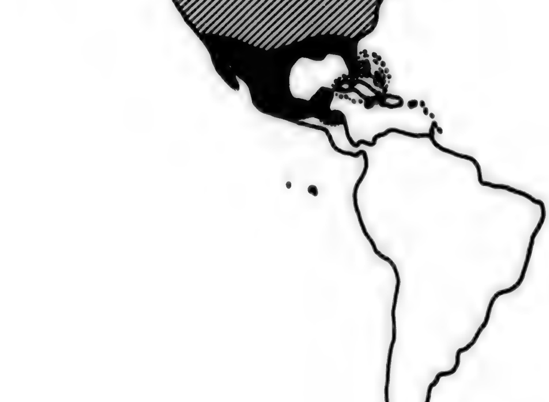
Myadestes townsendi

Townsend's Solitaire



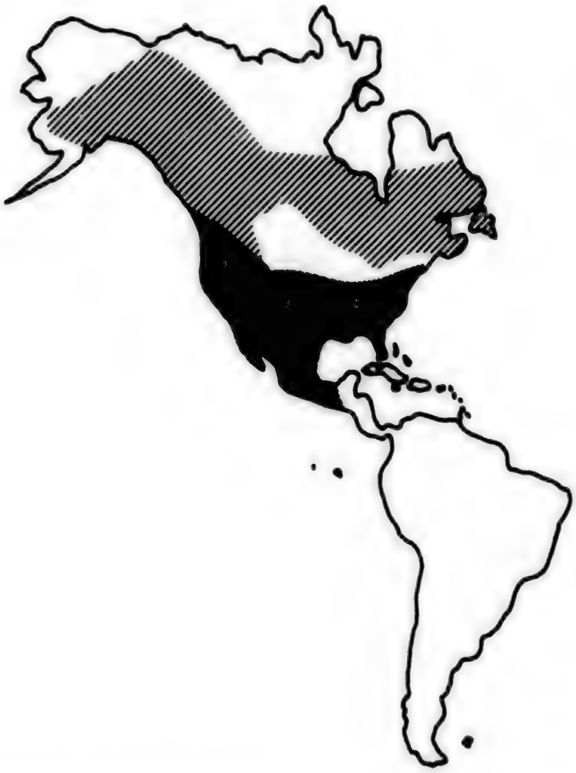
Polioptila caerulea

Blue-gray Gnatcatcher



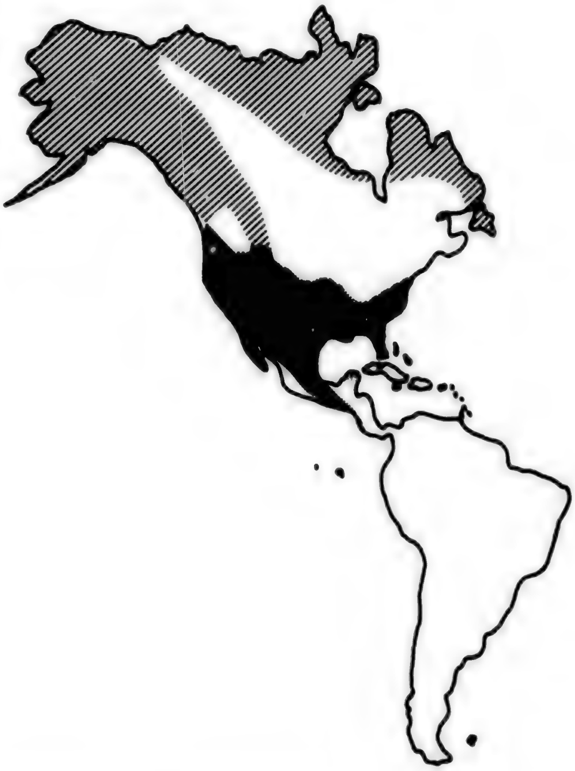
Regulus calendula

Ruby-crowned Kinglet



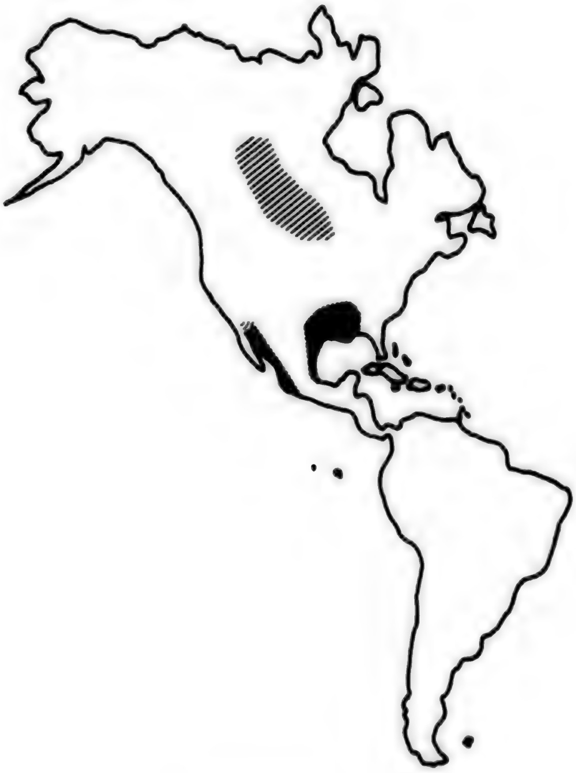
Anthus spinoletta

Water Pipit



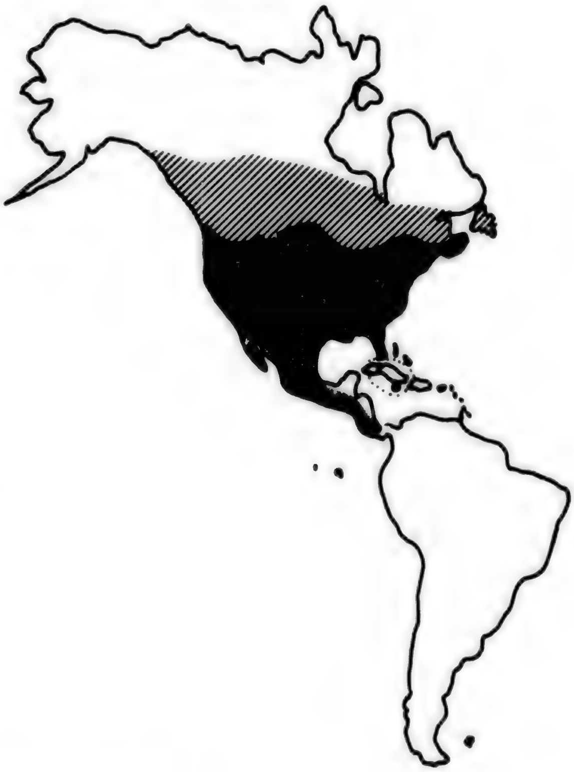
Anthus spragueii

Sprague's Pipit

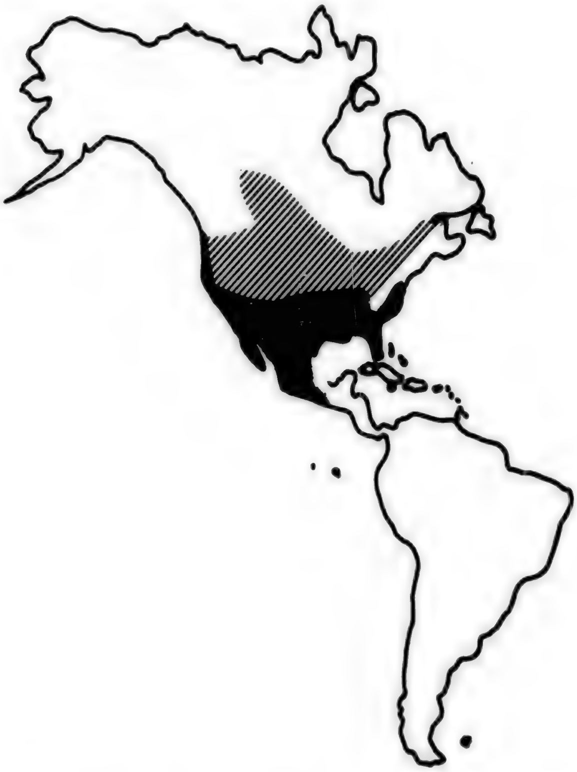


Bombycilla cedrorum

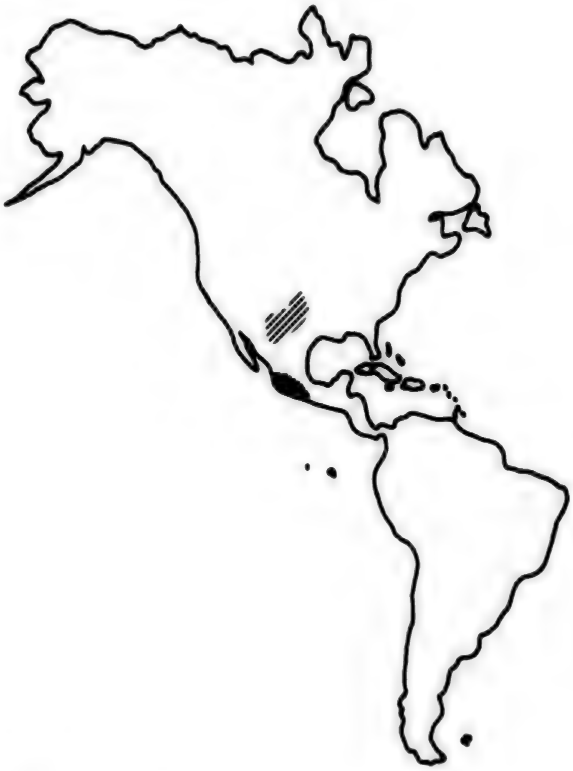
Cedar Waxwing



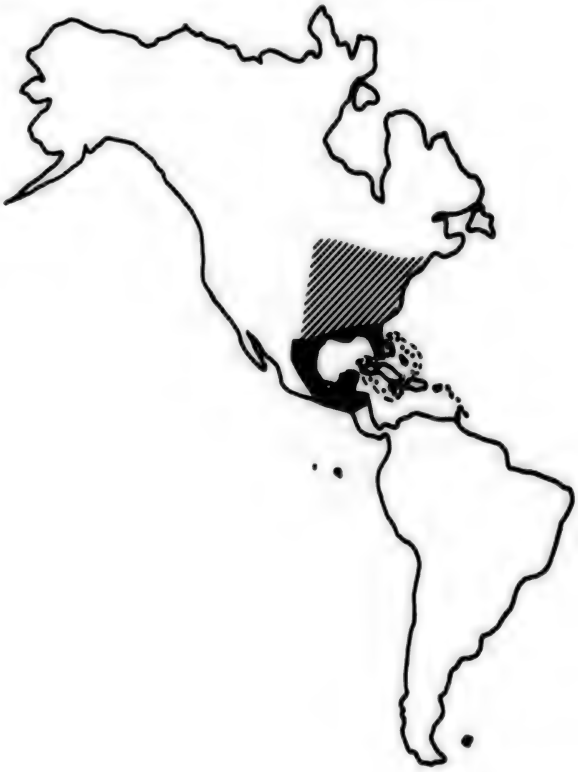
Lanius ludovicianus
Loggerhead Shrike



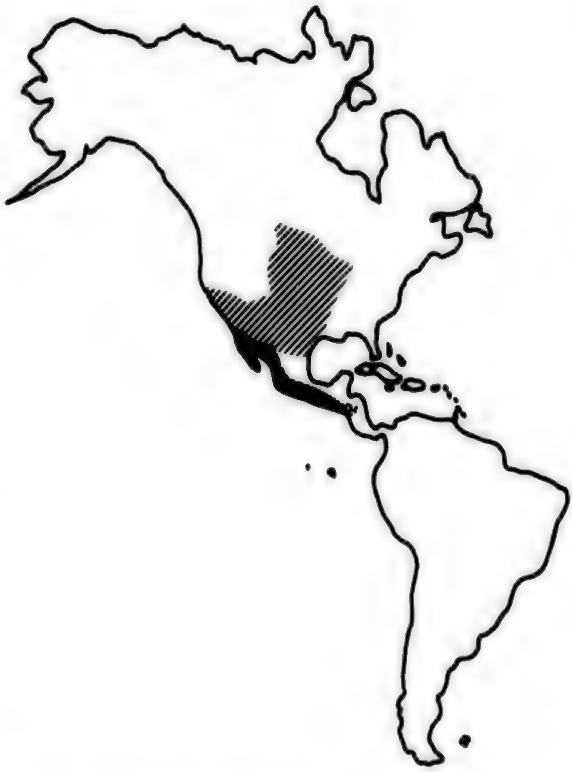
Vireo atricapilla
Black-capped Vireo



Vireo griseus - includes *pallens*, *modestus*, *caribaeus*, *crassirostris*
White-eyed Vireo

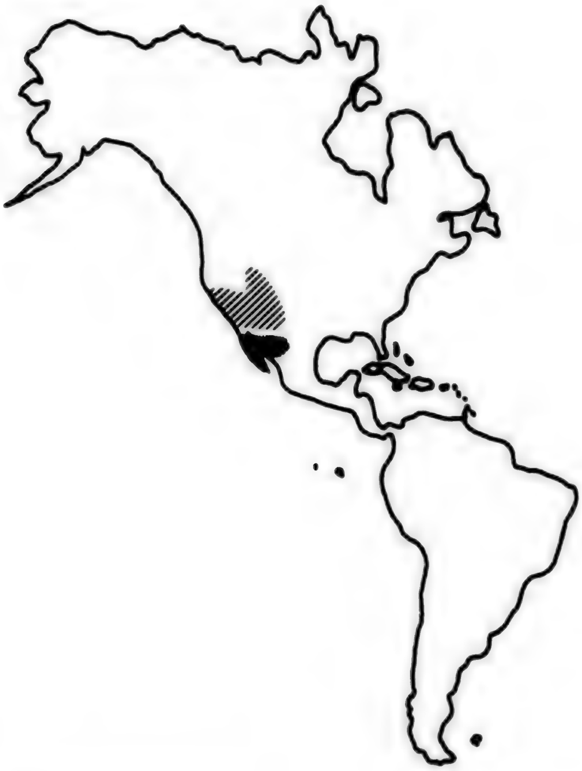


Vireo bellii
Bell's Vireo



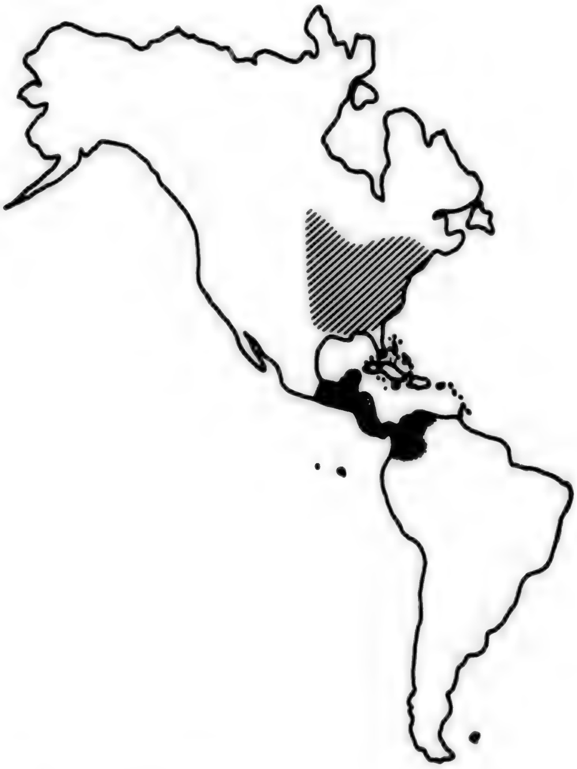
Vireo vicinior

Gray Vireo



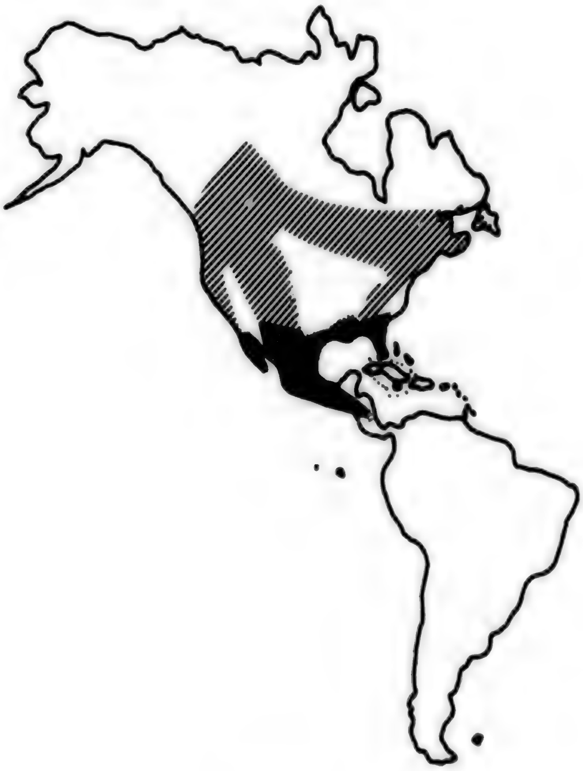
Vireo flavifrons

Yellow-throated Vireo



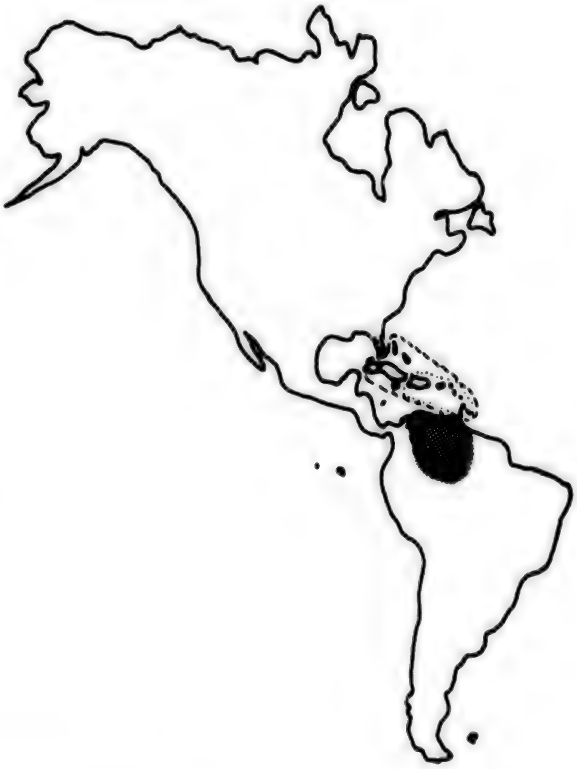
Vireo solitarius

Solitary Vireo



Vireo altiloquus

Black-whiskered Vireo



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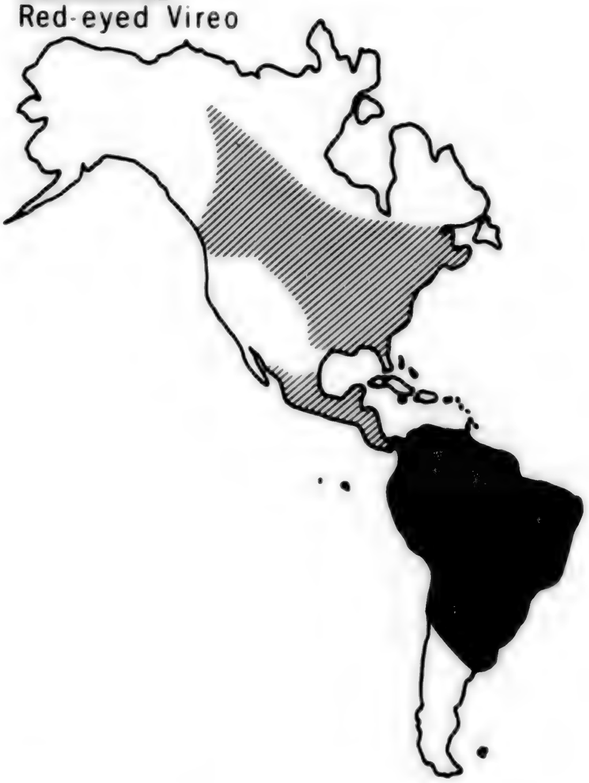
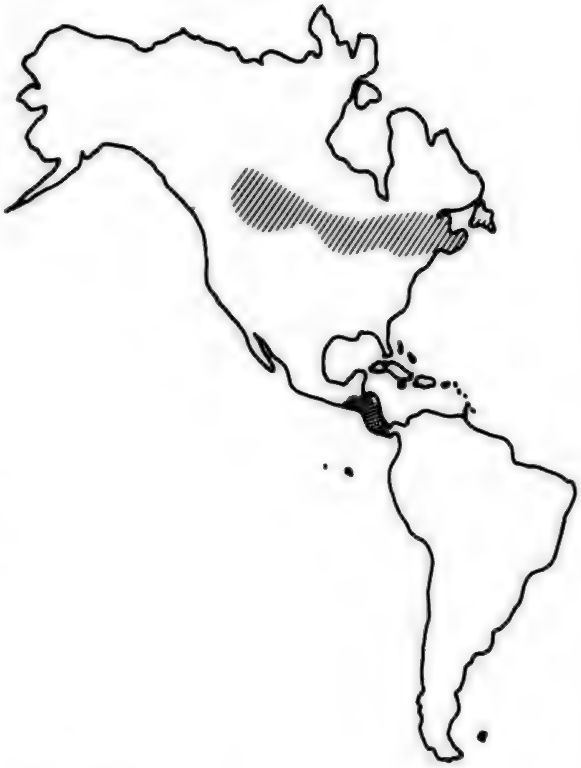
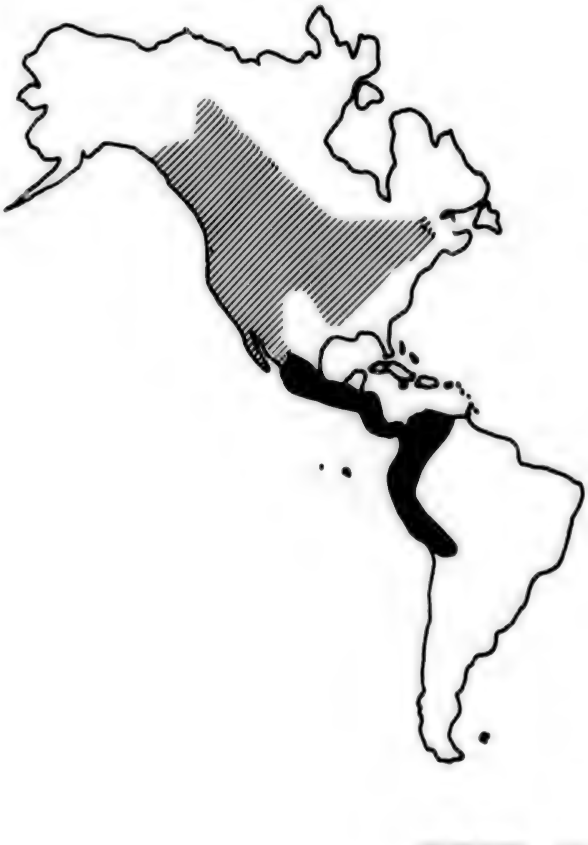
Vireo olivaceus - includes chivi, flaroviridis
Red-eyed Vireo



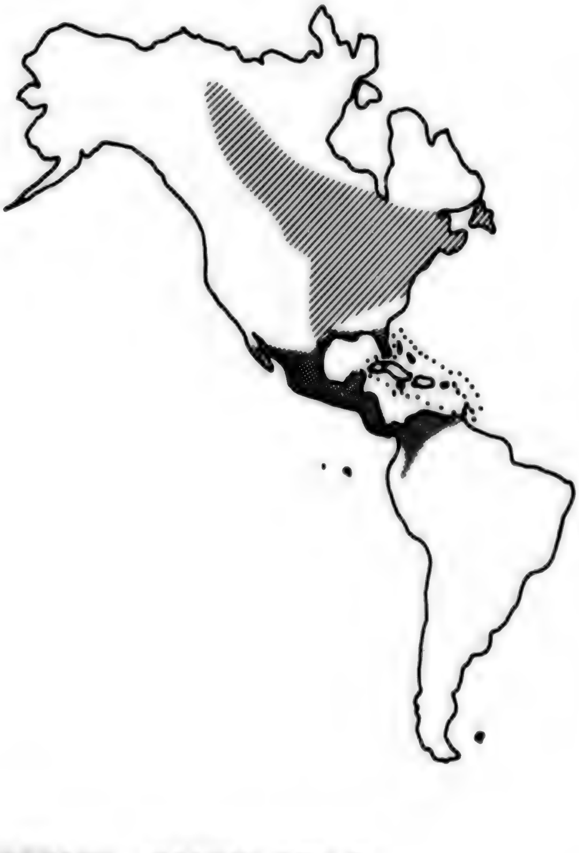
Vireo philadelphicus
Philadelphia Vireo

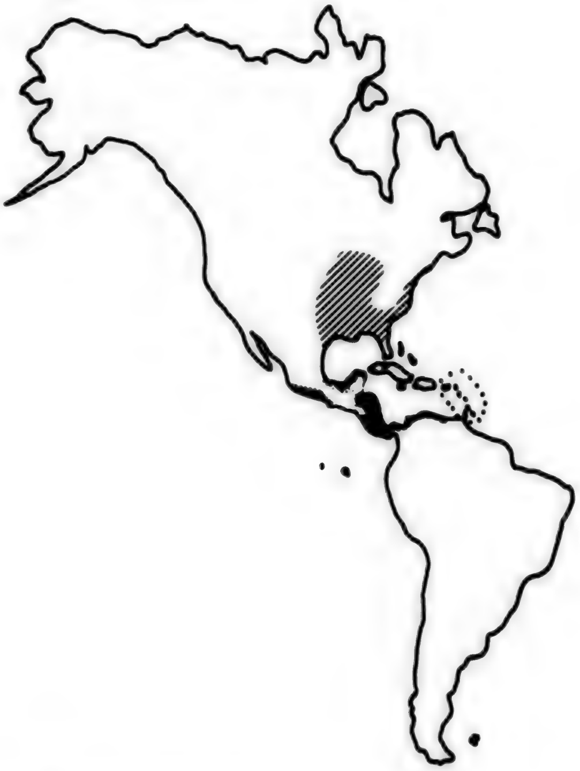


Vireo gilvus - includes leucophrys
Warbling Vireo



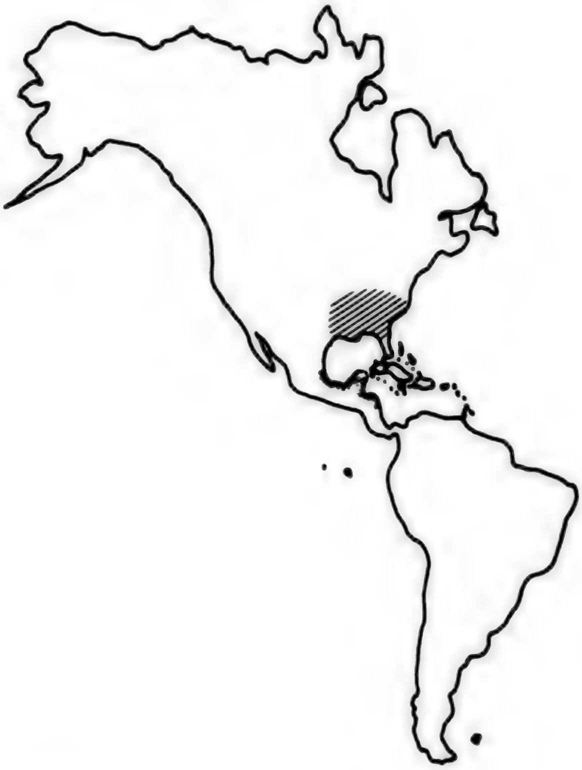
Mniotilta varia
Black-and-white Warbler





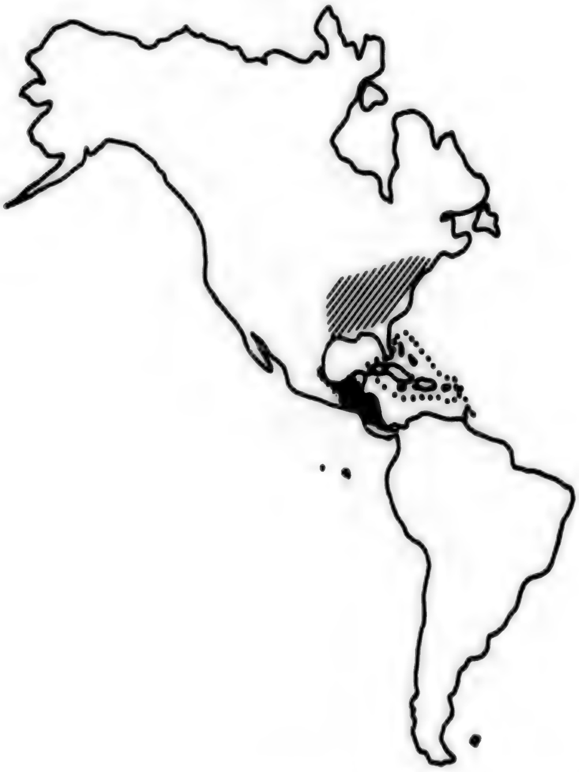
Protonotaria citrea

Prothonotary Warbler



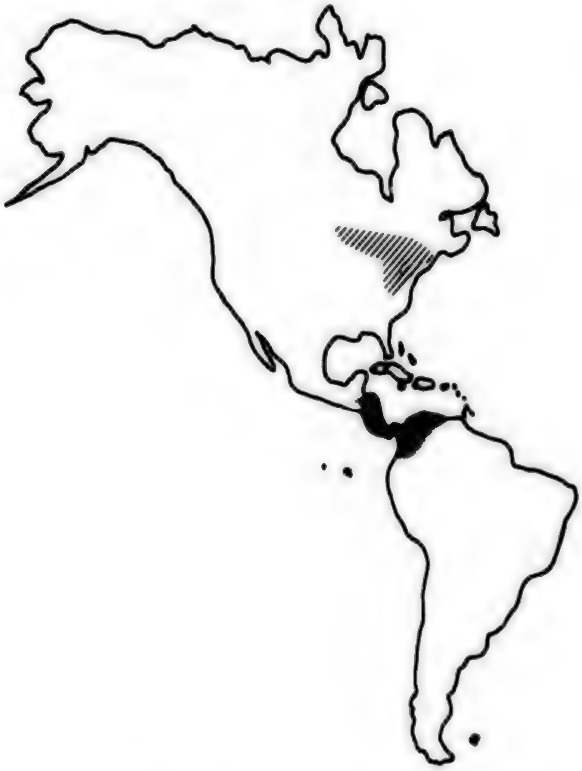
Limnothlypis swainsonii

Swainson's Warbler



Helmitheros vermivorus

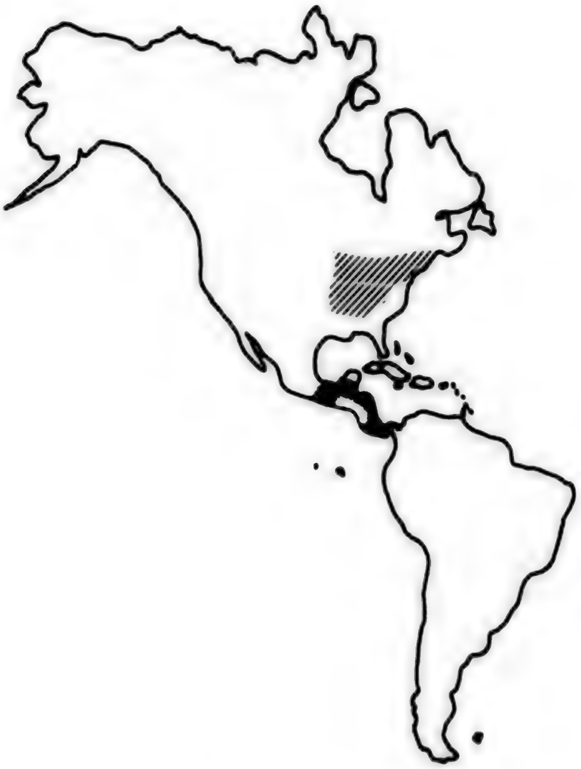
Worm-eating Warbler



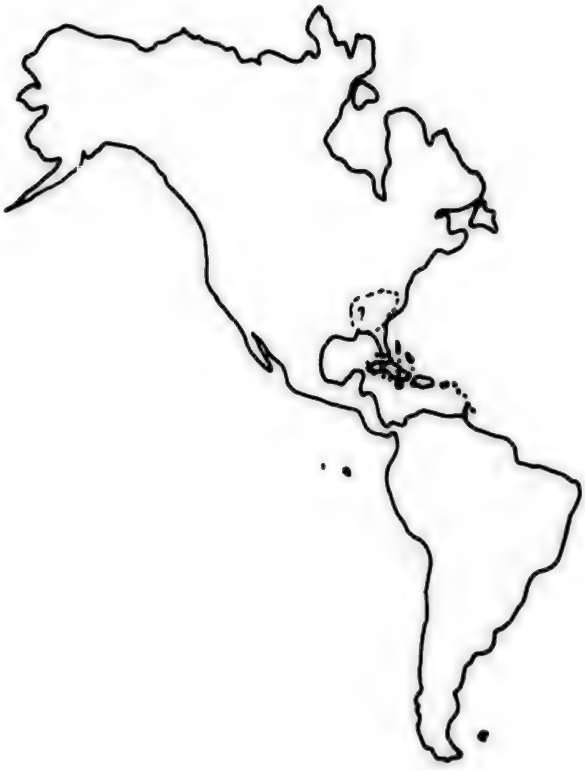
Vermivora chrysoptera

Golden-winged Warbler

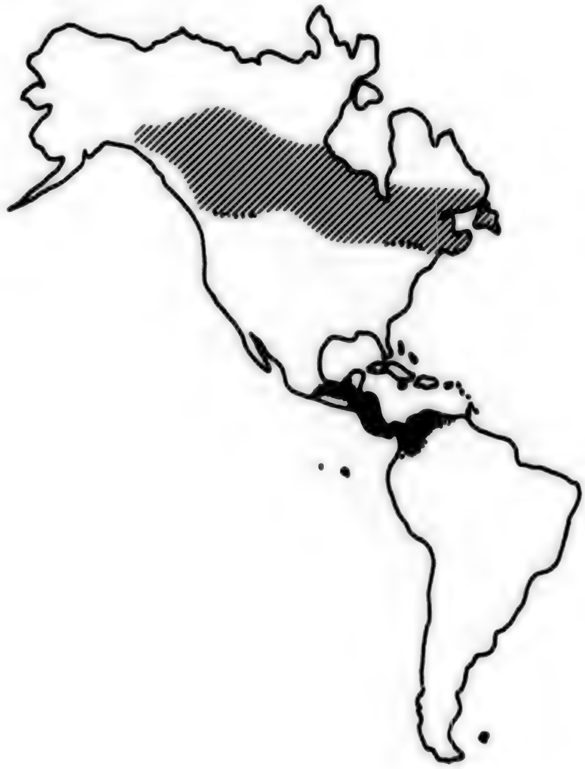
Vermivora pinus
Blue-winged Warbler



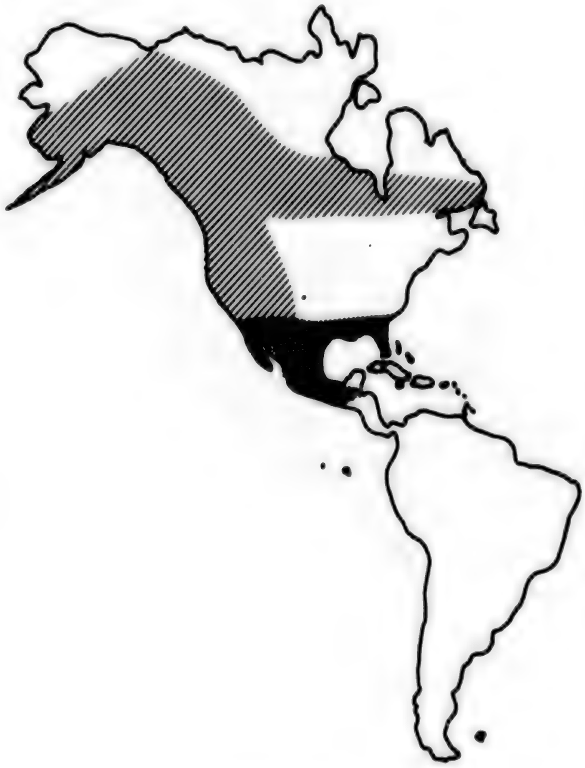
Vermivora bachmanii - near extinction
Bachman's Warbler



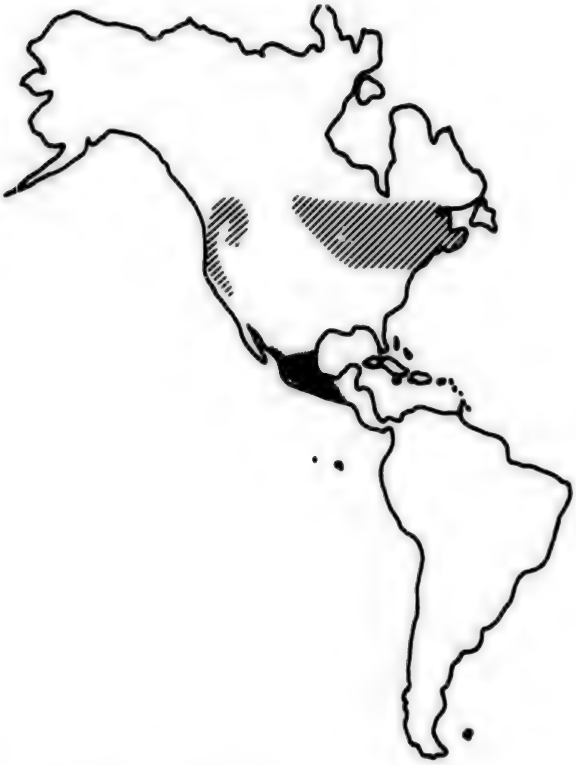
Vermivora peregrina
Tennessee Warbler



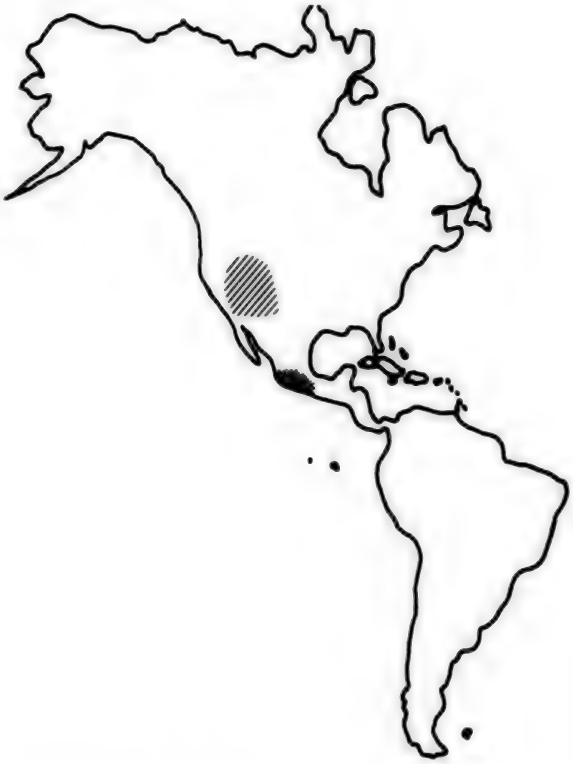
Vermivora celata
Orange-crowned Warbler



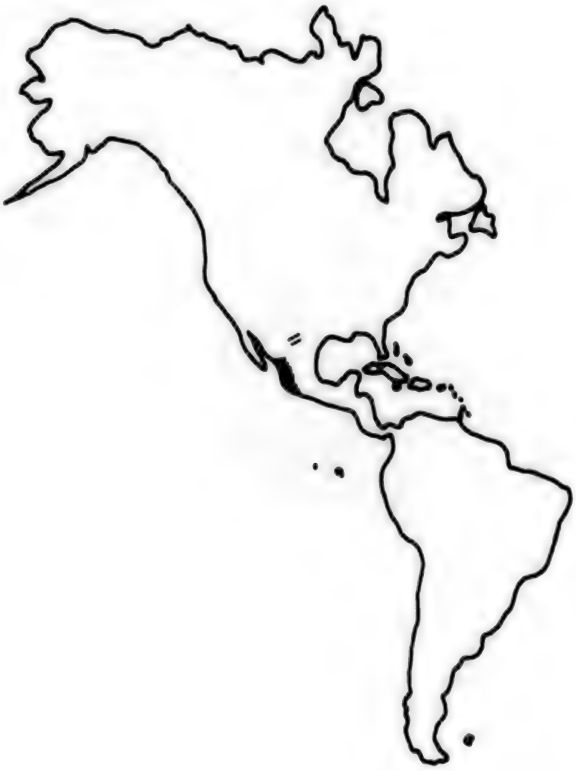
Vermivora ruficapilla
Nashville Warbler



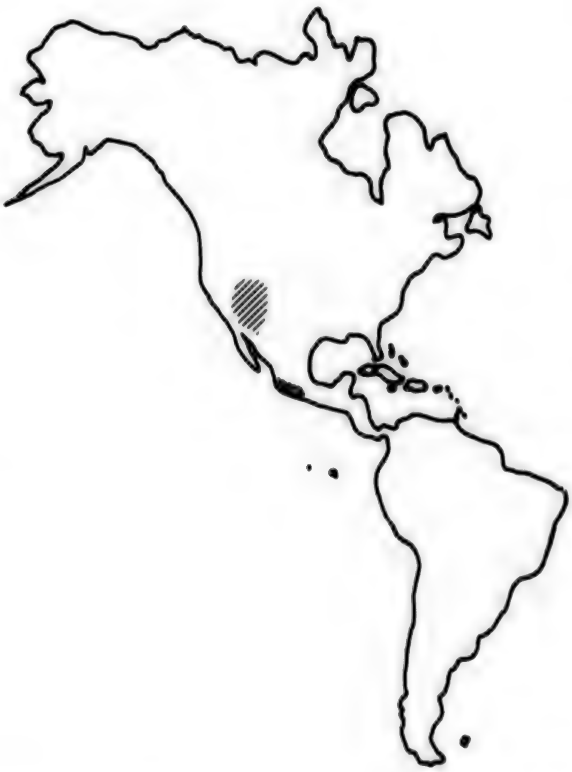
Vermivora virginiae
Virginia's Warbler



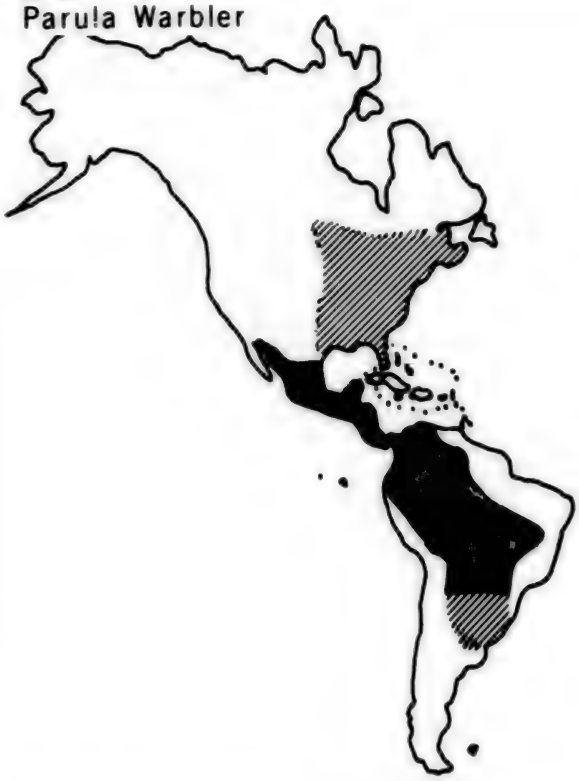
Vermivora crissalis
Colima Warbler



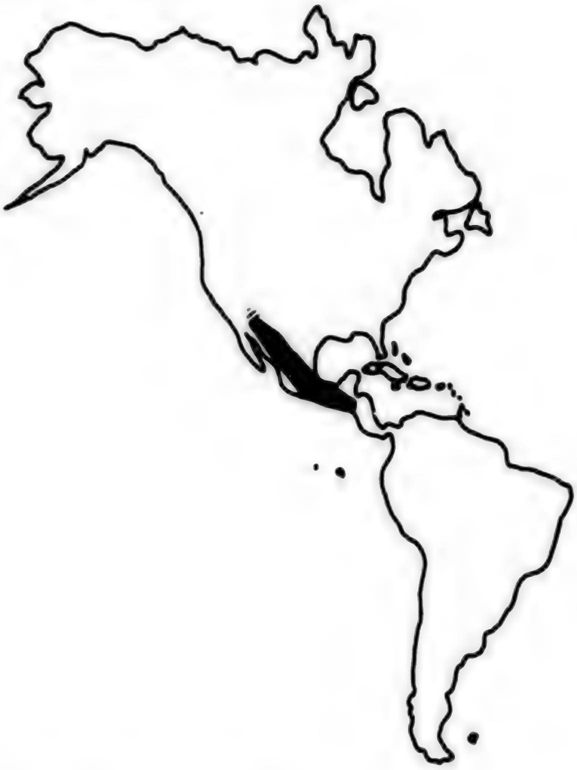
Vermivora luciae
Lucy's Warbler



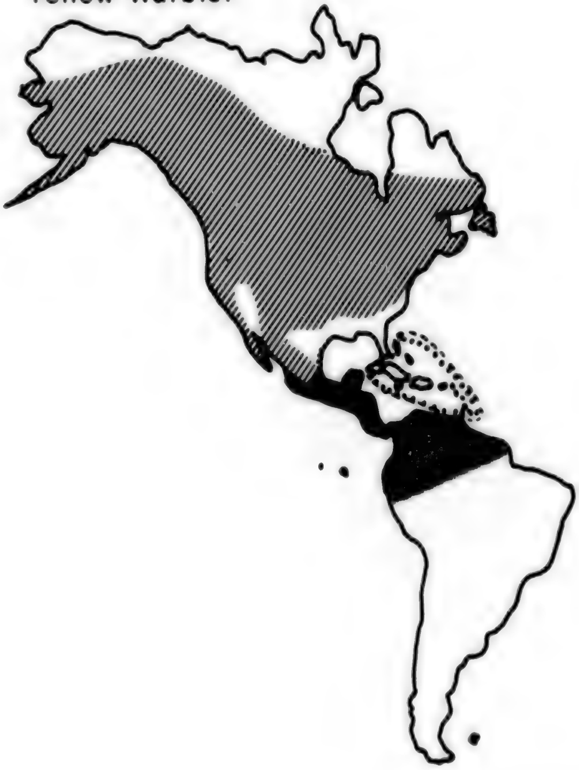
Parula americana - includes *pitiayumi*, *graysoni*
Parula Warbler



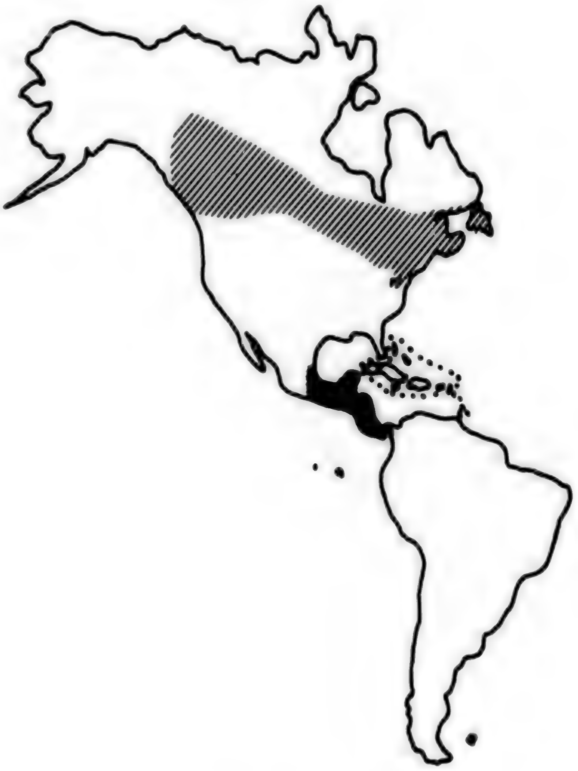
Peucedramus taeniatus
Olive Warbler



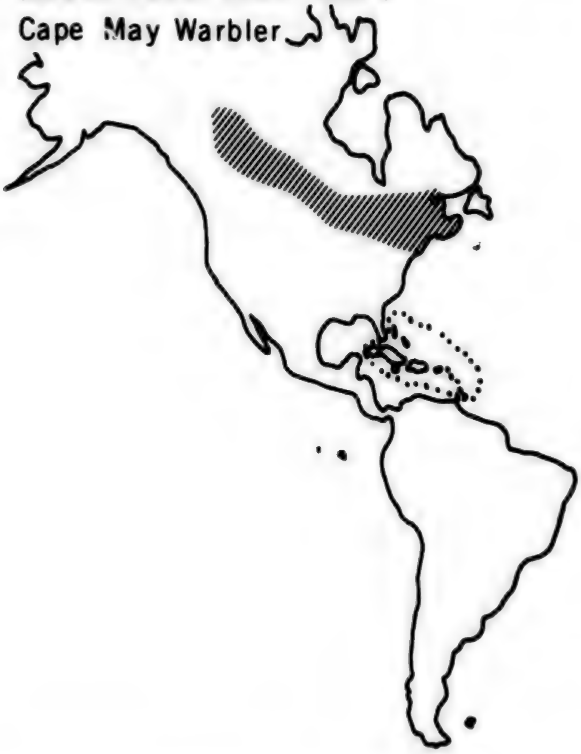
Dendroica petechia - includes *erithrachorides*
Yellow Warbler



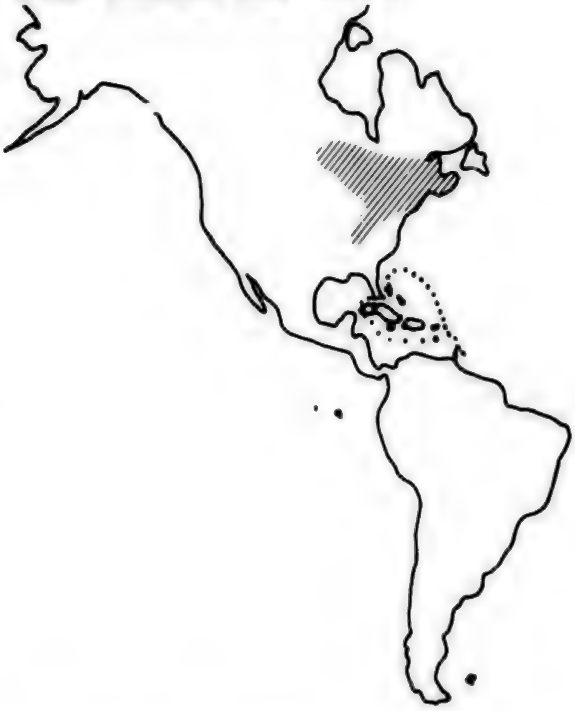
Dendroica magnolia
Magnolia Warbler



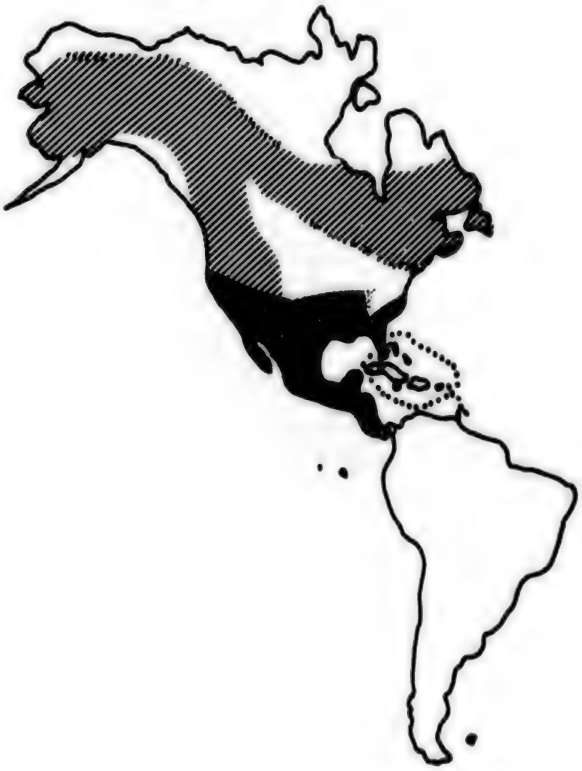
Dendroica tigrina - may be regular along the Caribbean Coast of Middle America (2080, 2082, 2083, 2084)
Cape May Warbler



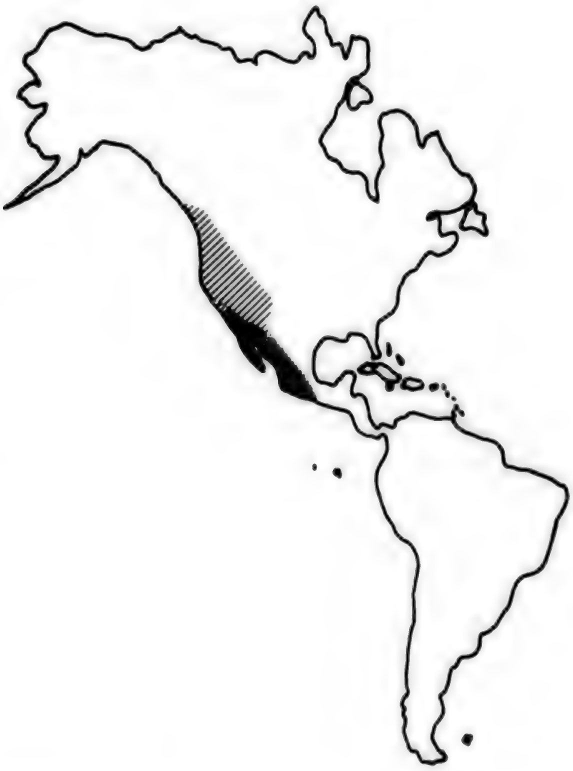
Dendroica caerulescens - may be regular along the Caribbean Coast of Middle & South America
Black-throated Blue Warbler



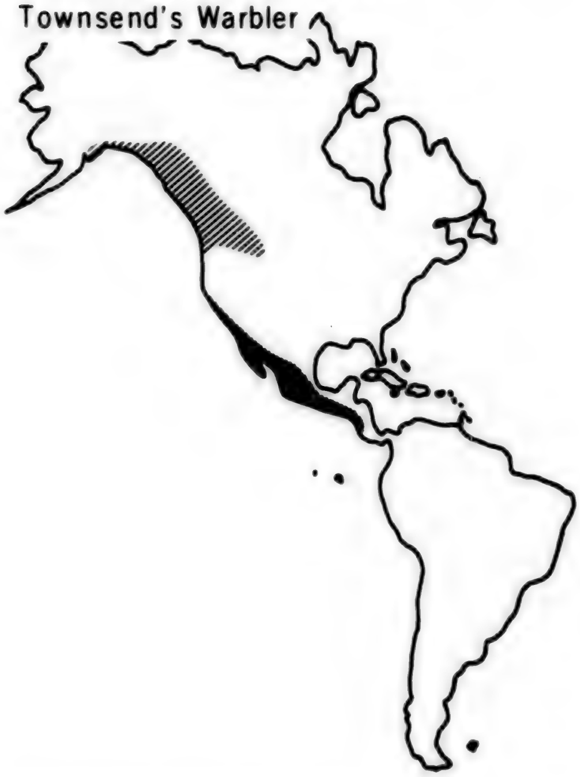
Dendroica coronata - includes auduboni
Yellow-rumped Warbler



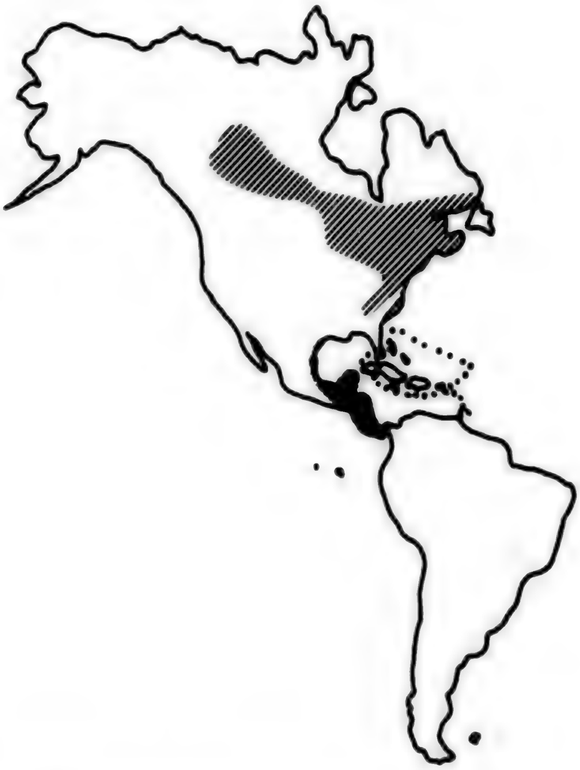
Dendroica nigrescens
Black-throated Gray Warbler



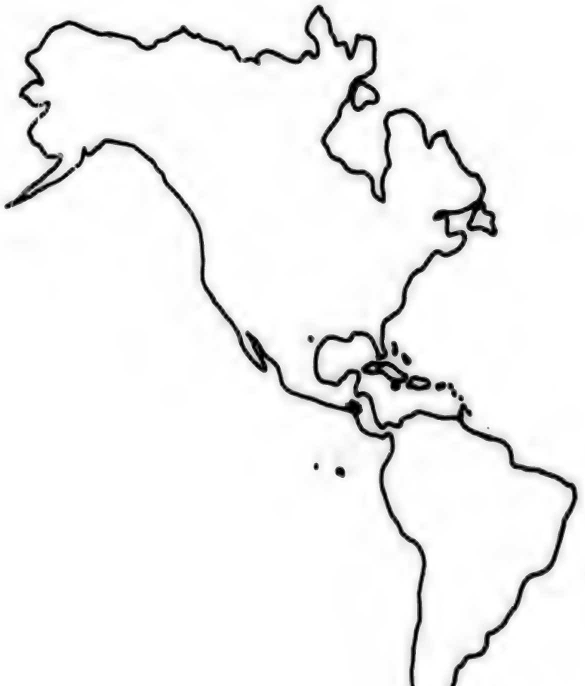
Dendroica townsendi - records from Costa Rica, Colombia (172, 1221)
Townsend's Warbler



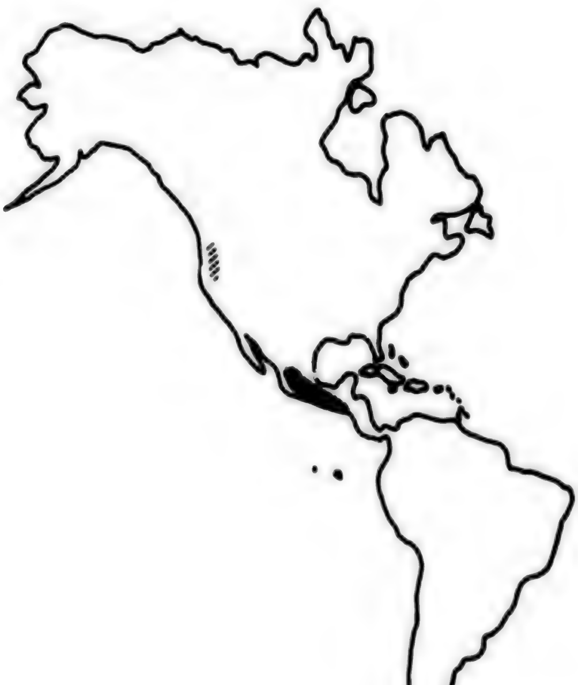
Dendroica virens
Black-throated Green Warbler



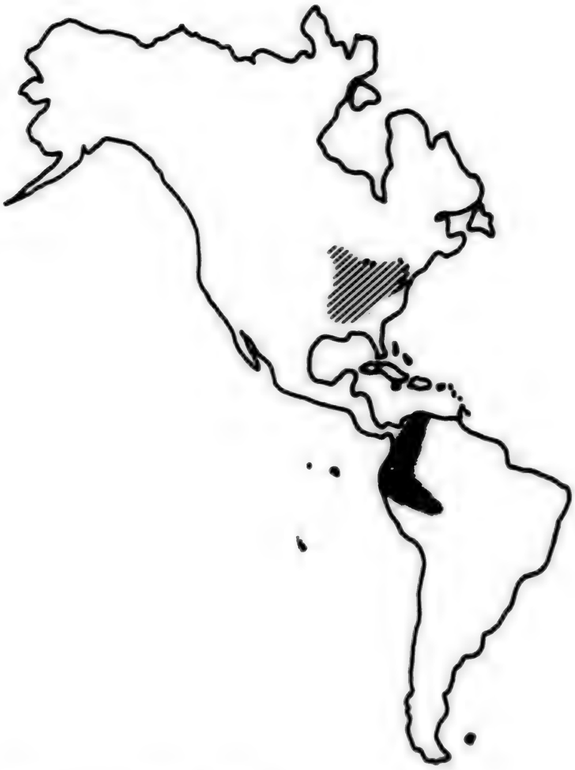
Dendroica chrysoparia
Golden-cheeked Warbler



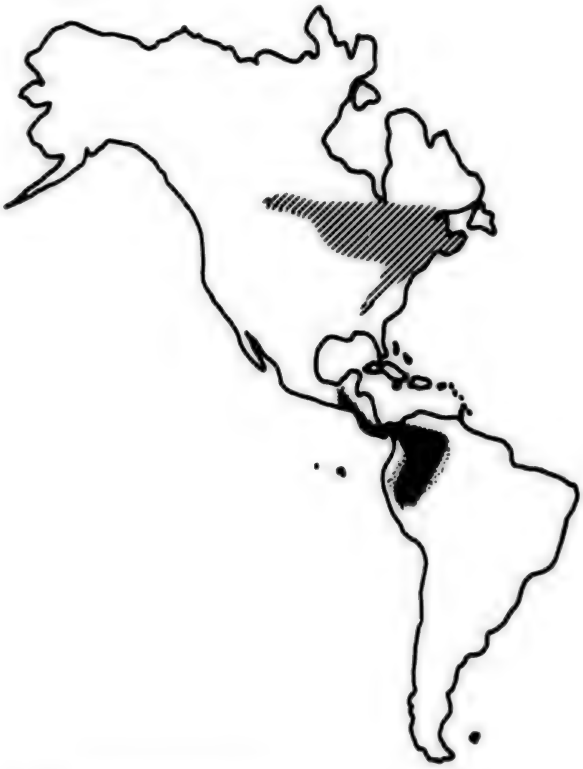
Dendroica occidentalis
Hermit Warbler



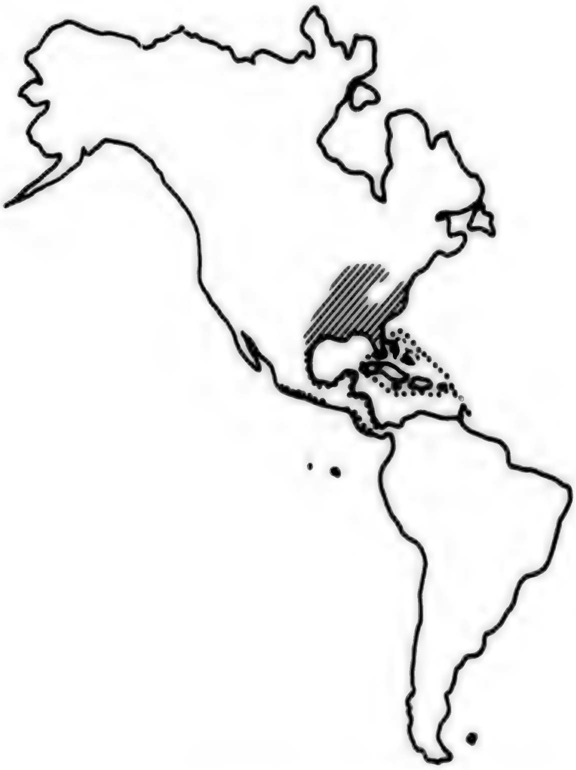
Dendroica cerulea
Cerulean Warbler



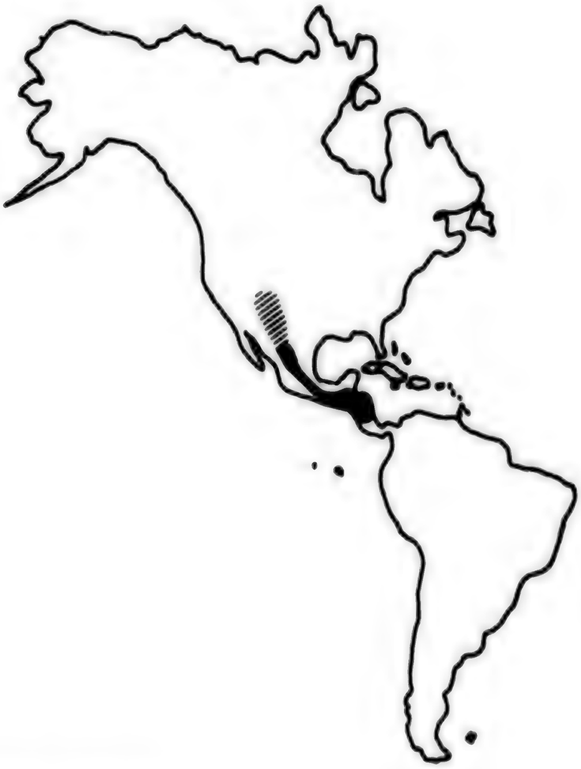
Dendroica fusca
Blackburnian Warbler



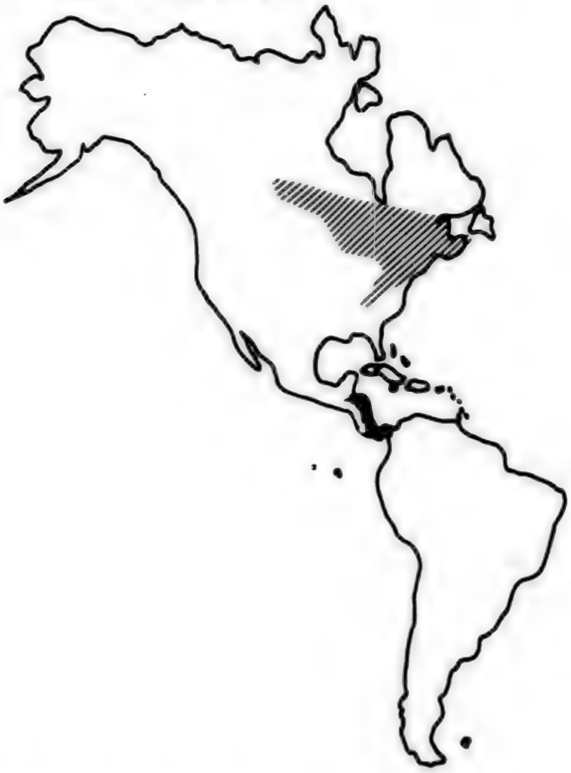
Dendroica dominica
Yellow-throated Warbler



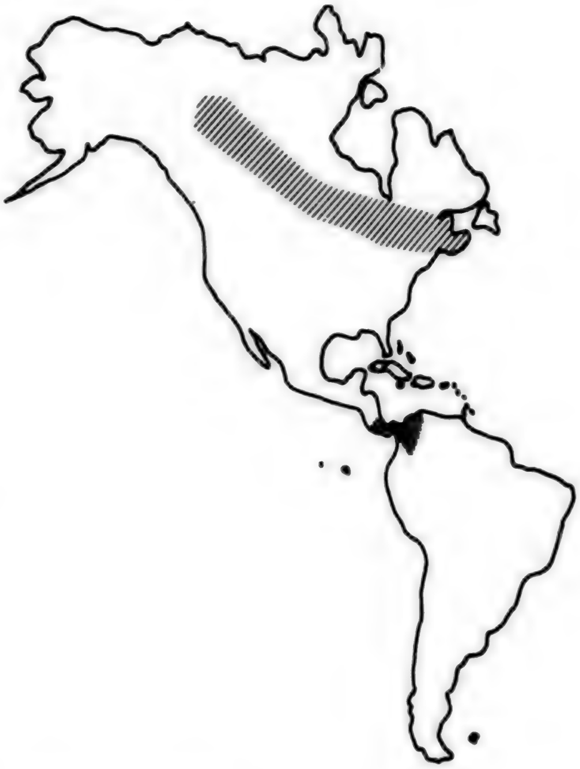
Dendroica graciae
Grace's Warbler



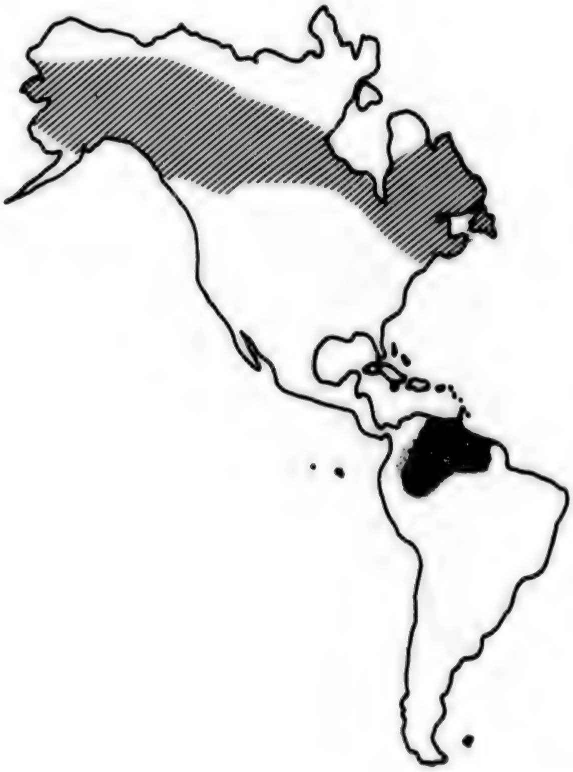
Dendroica pensylvanica - occasionally winters N. to southern Mexico
Chestnut-sided Warbler



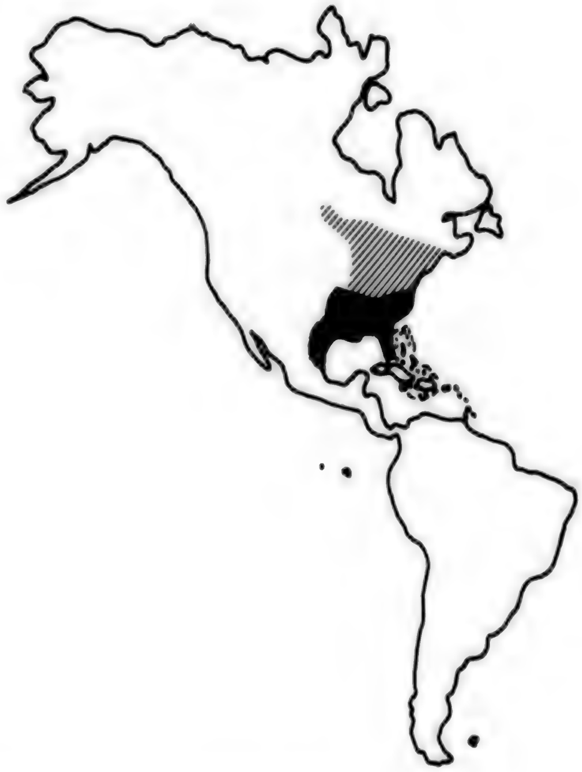
Dendroica castanea - may winter regularly in Cuba.
Bay-breasted Warbler



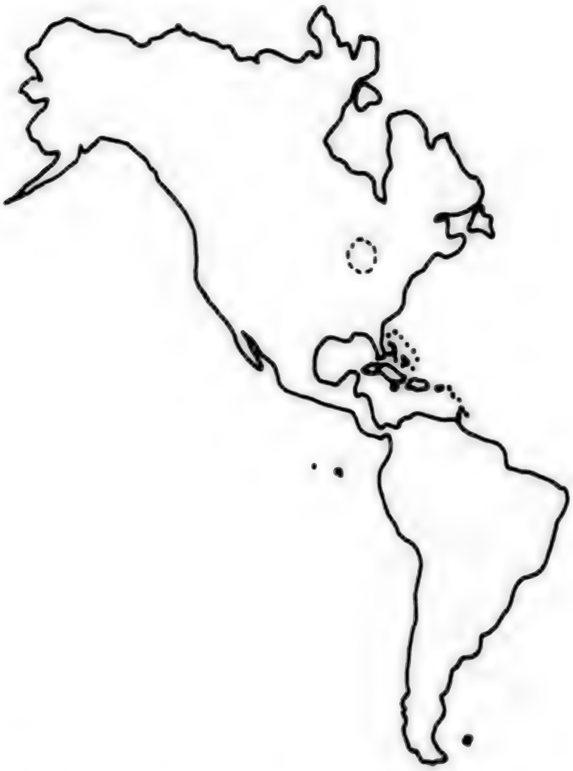
Dendroica striata
Blackpoll Warbler



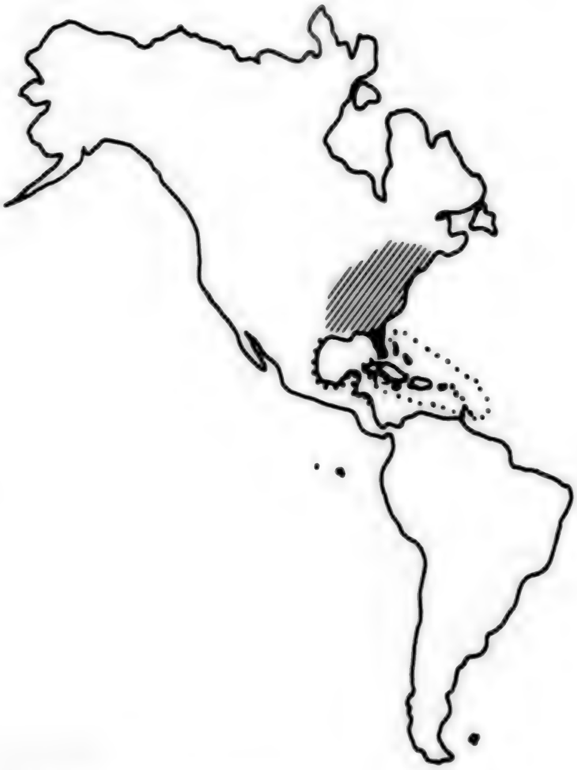
Dendroica pinus
Pine Warbler



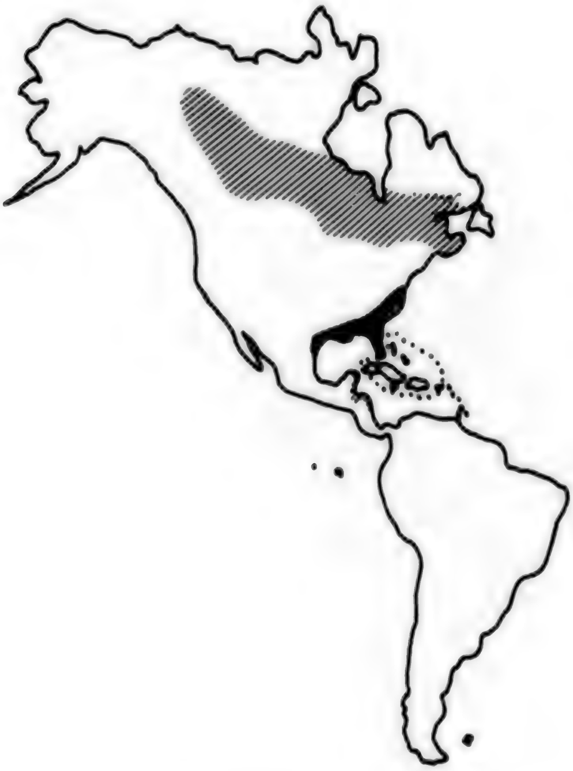
Dendroica kirtlandii - nearly extinct
Kirtland's Warbler



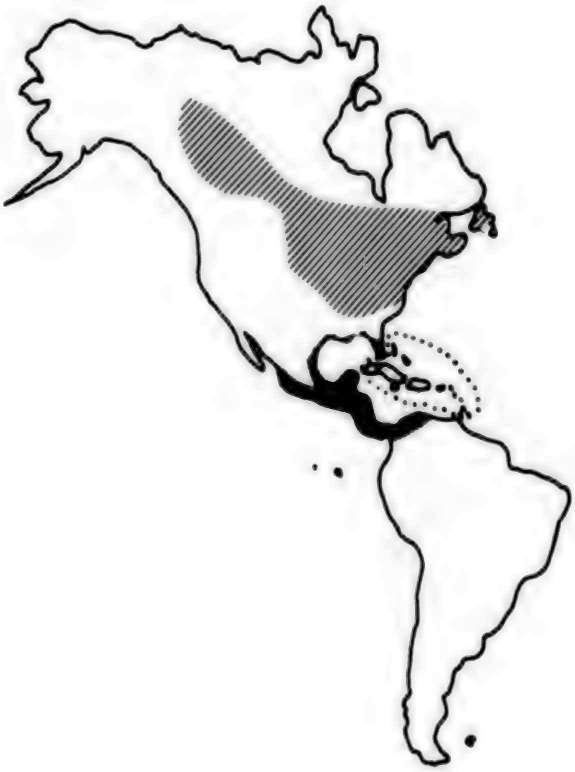
Dendroica discolor - includes vitellina
Prairie Warbler



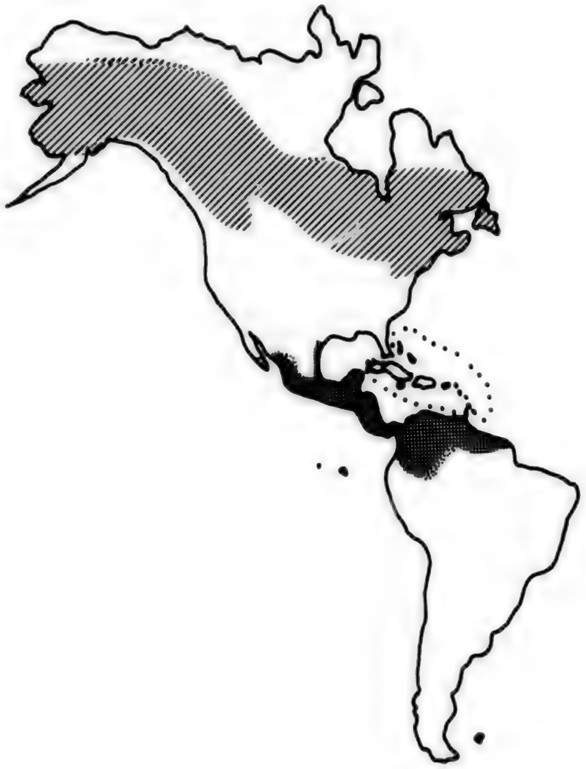
Dendroica palmarum
Palm Warbler



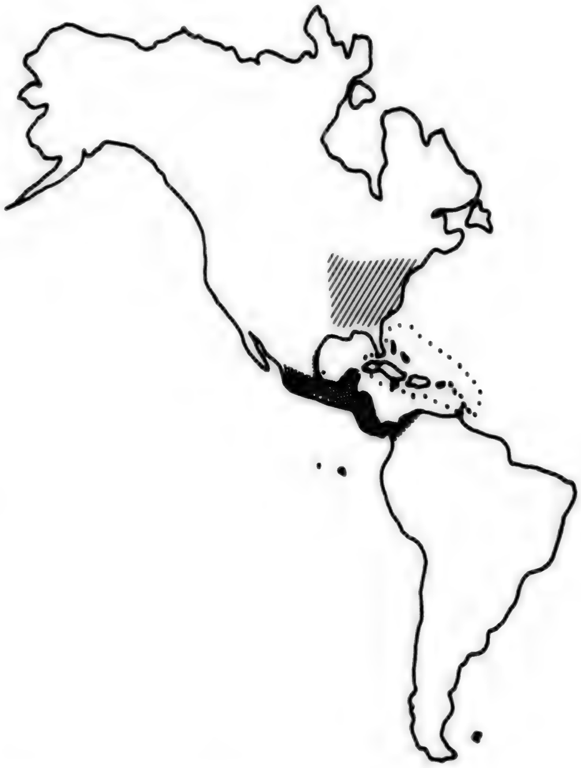
Seiurus aurocapillus
Ovenbird



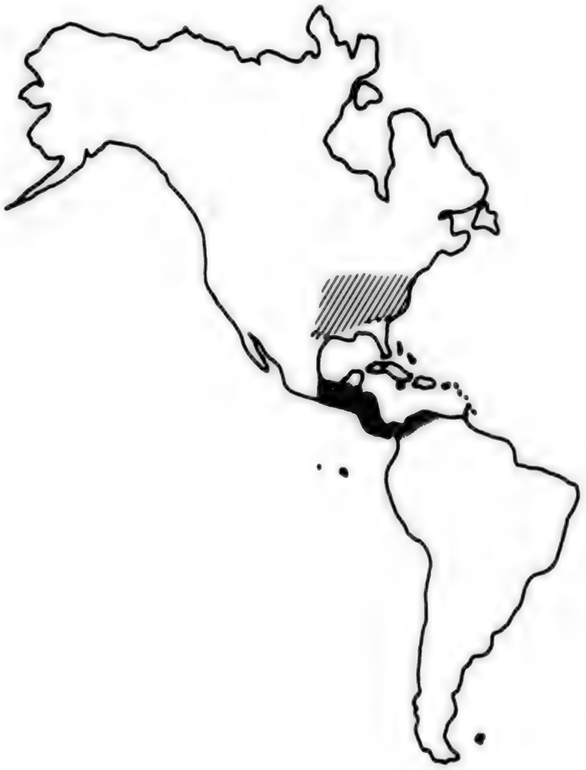
Seiurus noveboracensis
Northern Waterthrush



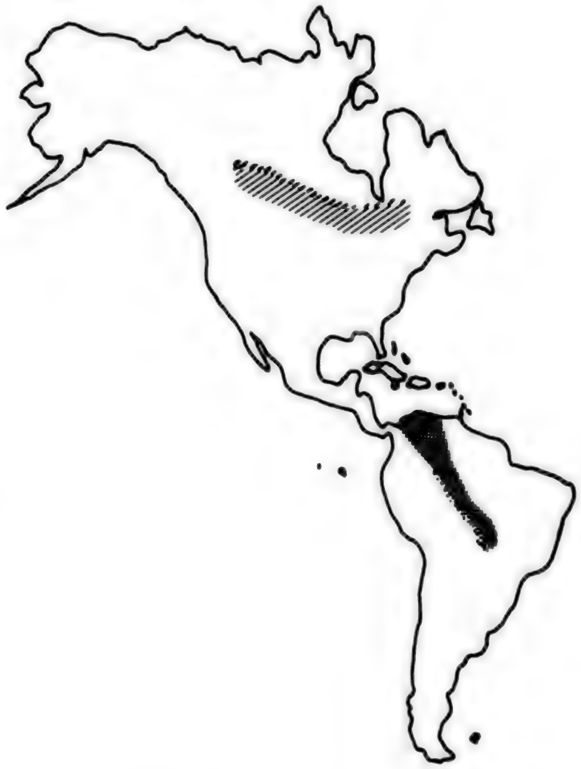
Seiurus motacilla
Louisiana Waterthrush



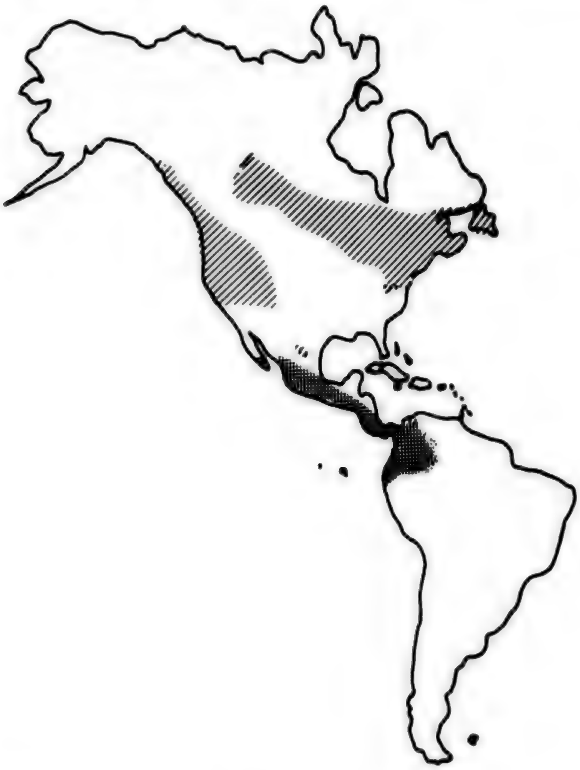
Oporornis formosus
Kentucky Warbler



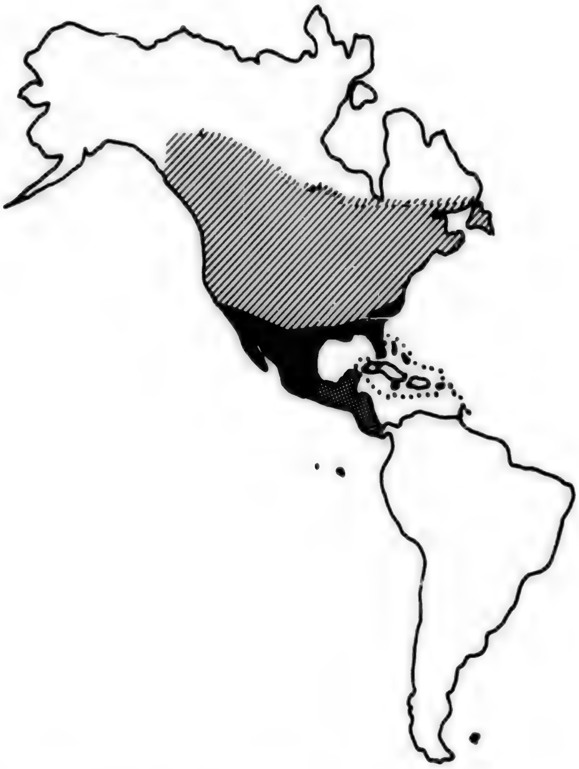
Oporornis agilis
Connecticut Warbler



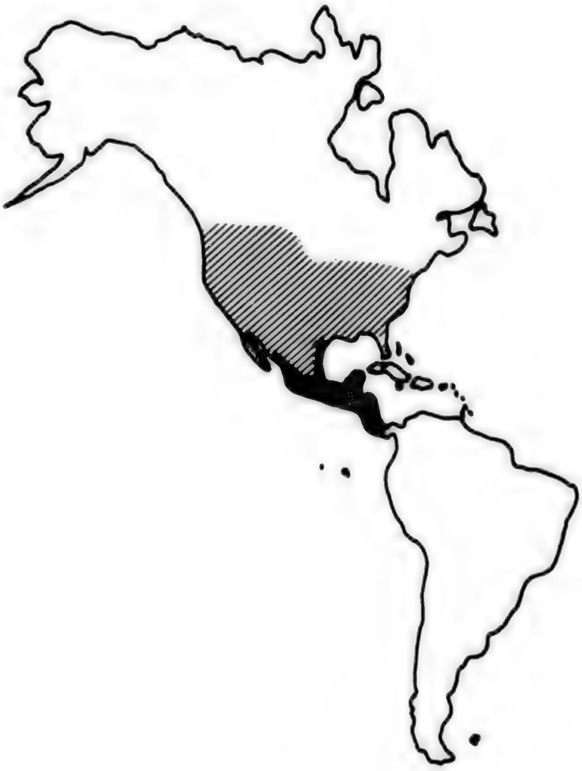
Oporornis philadelphia - includes tolmiei
Mourning Warbler



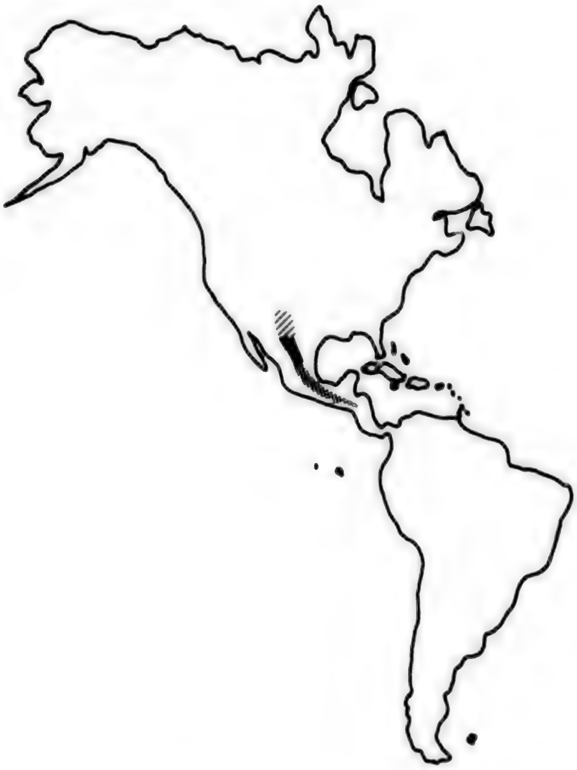
Geothlypis trichas
Common Yellowthroat



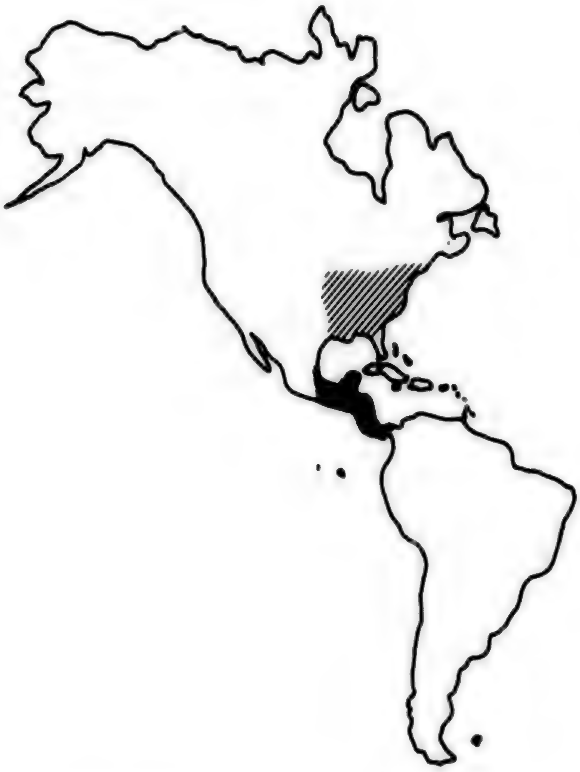
Icteria virens
Yellow-breasted Chat



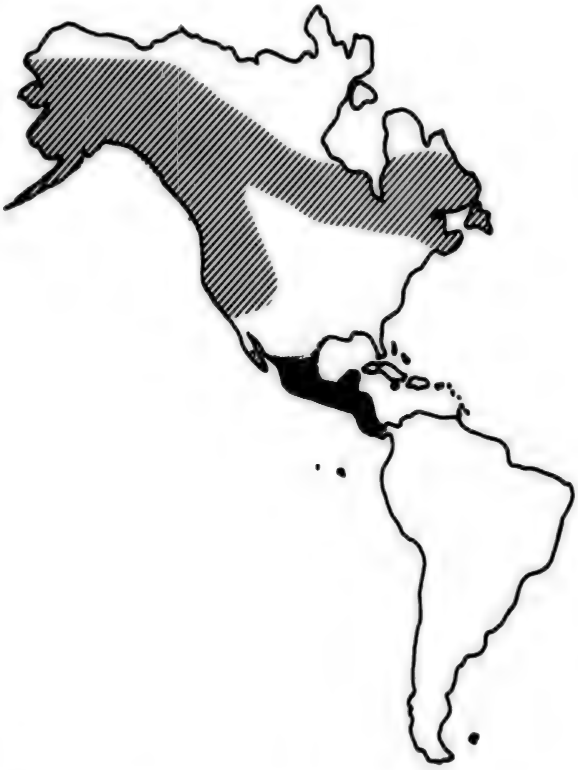
Cardellina rubrifrons
Red-faced Warbler



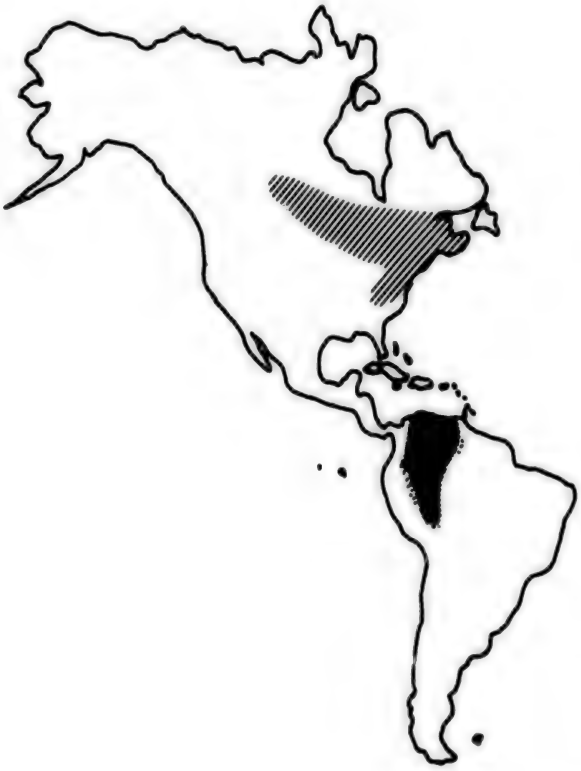
Wilsonia citrina
Hooded Warbler



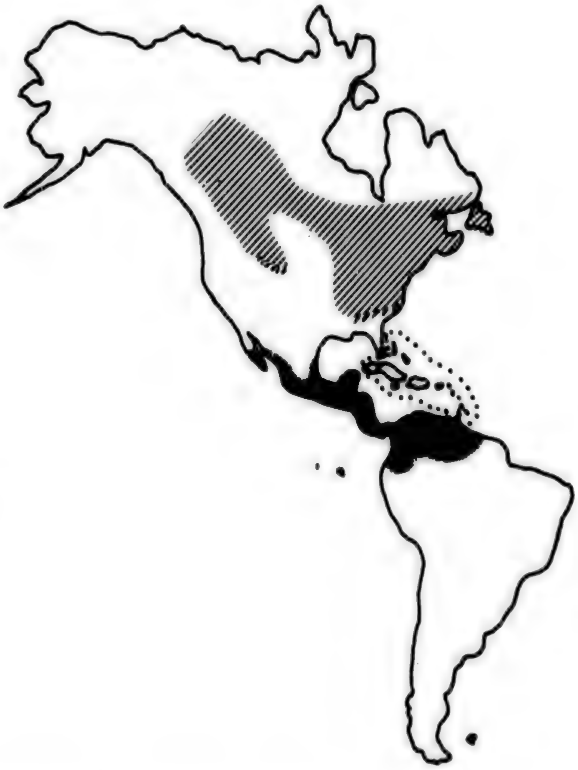
Wilsonia pusilla
Wilson's Warbler



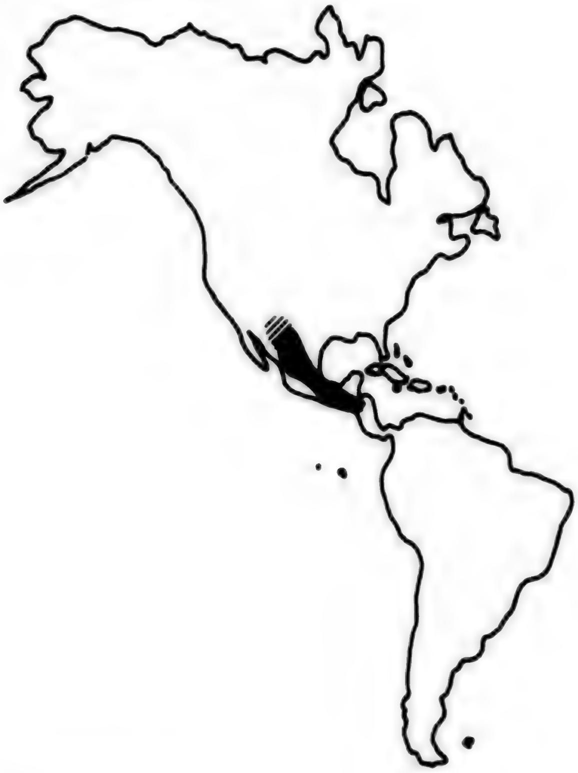
Wilsonia canadensis
Canada Warbler



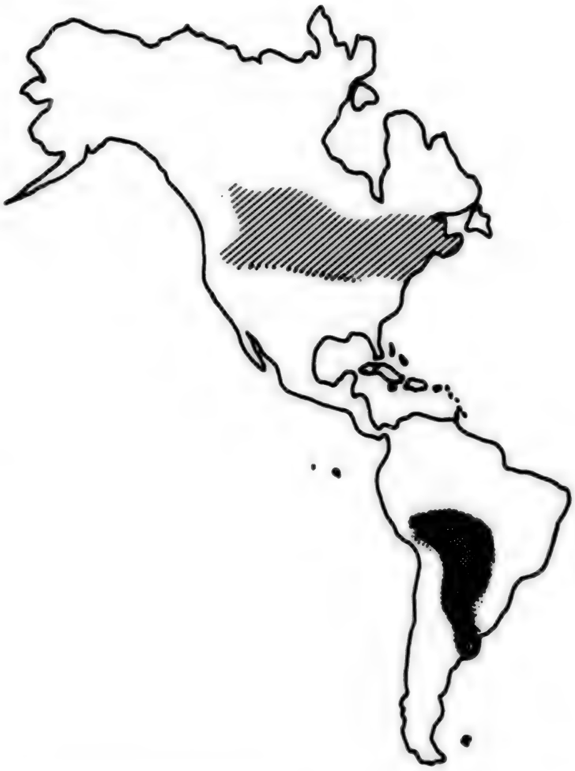
Setophaga ruticilla
American Redstart



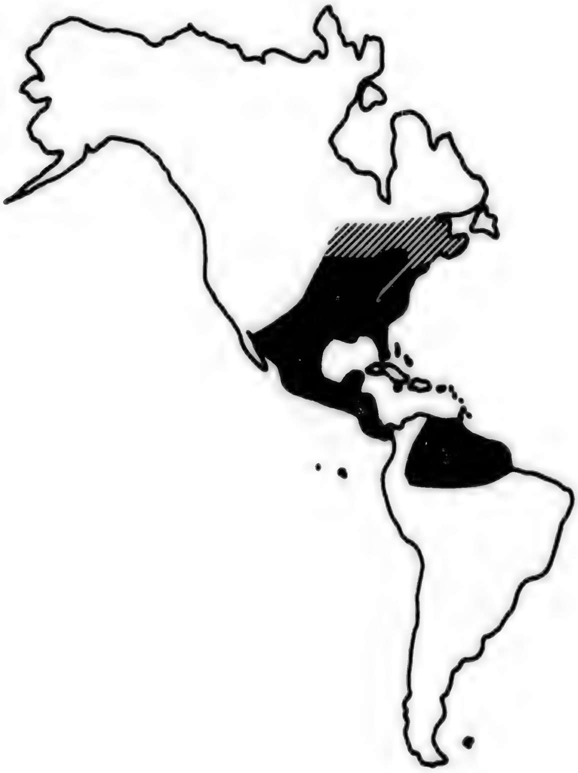
Myioborus pictus
Painted Redstart



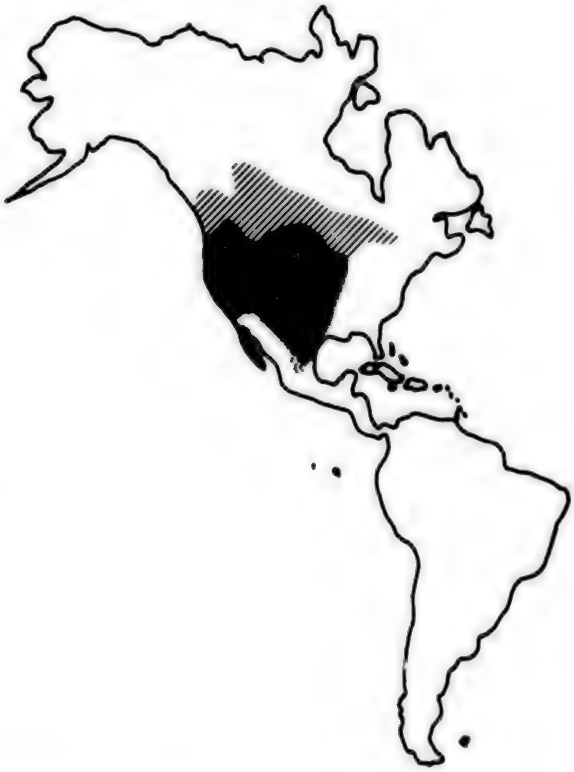
Dolichonyx oryzivorus
Bobolink



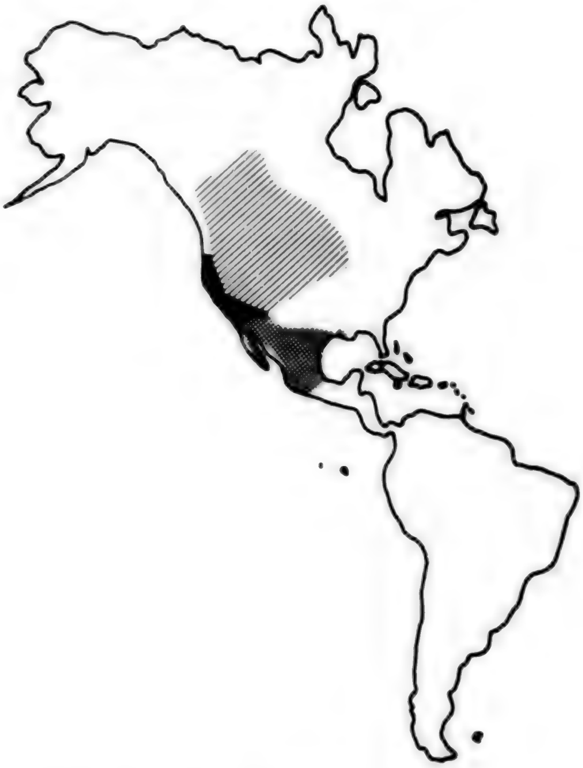
Sturnella magna
Eastern Meadowlark



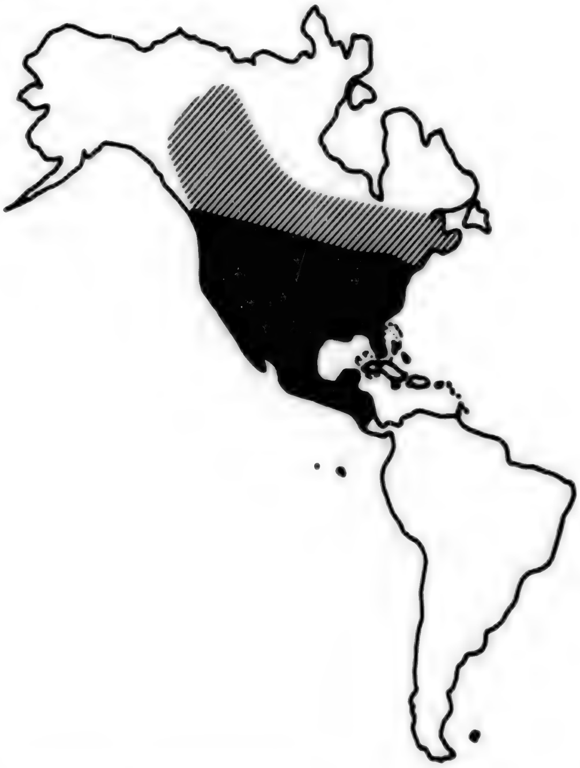
Sturnella neglecta
Western Meadowlark



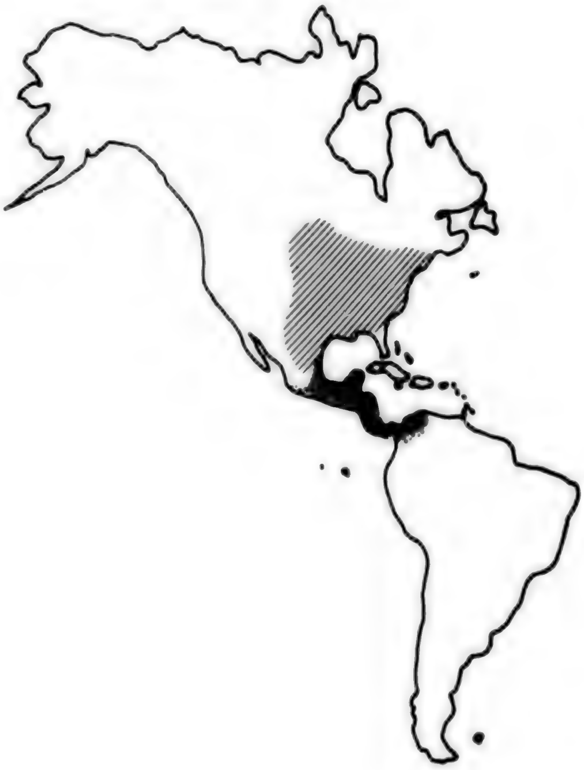
Xanthocephalus xanthocephalus
Yellow-headed Blackbird



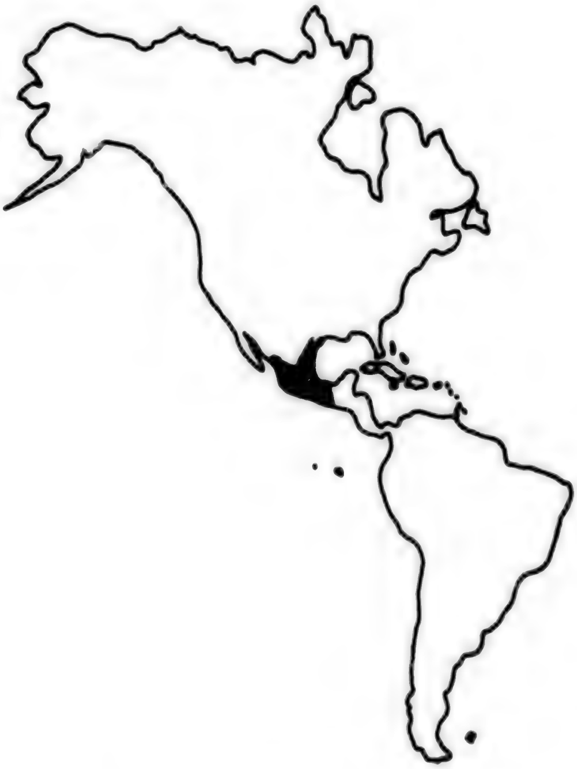
Agelaius phoeniceus
Red-winged Blackbird



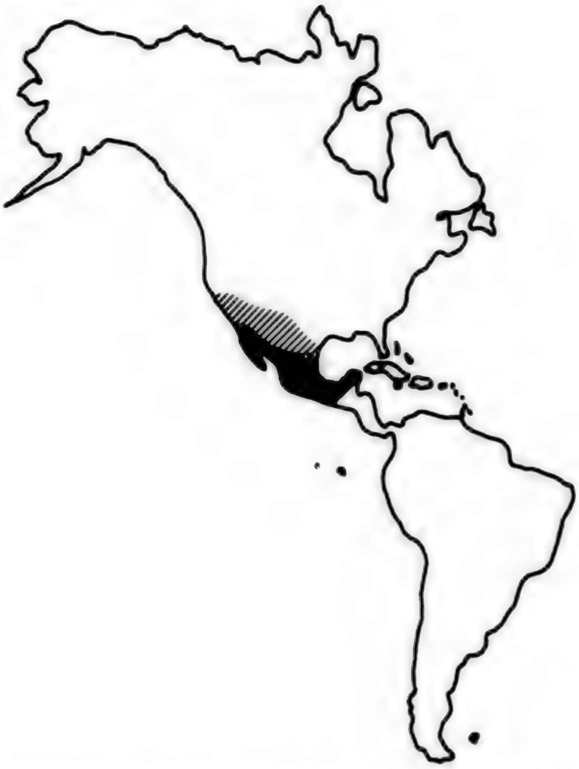
Icterus spurius - includes fuertesi
Orchard Oriole



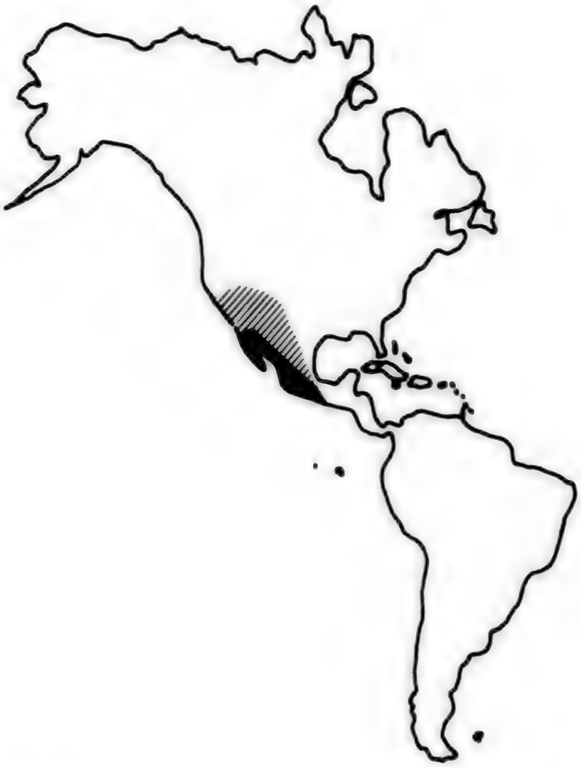
Icterus graduacauda
Black-headed Oriole



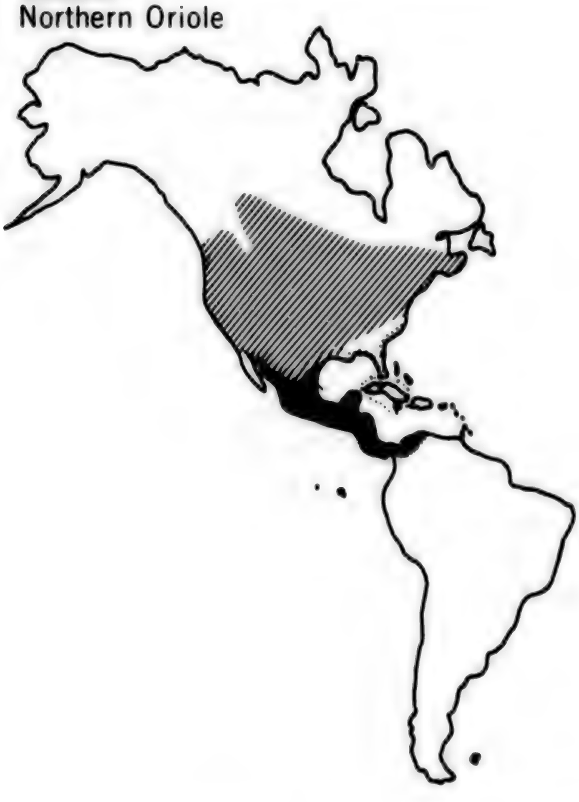
Icterus cucullatus
Hooded Oriole



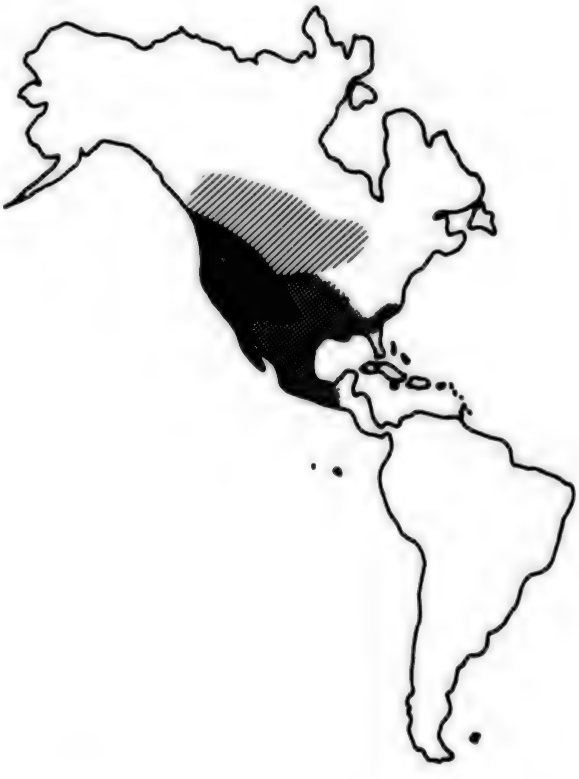
Icterus parisorum
Scott's Oriole



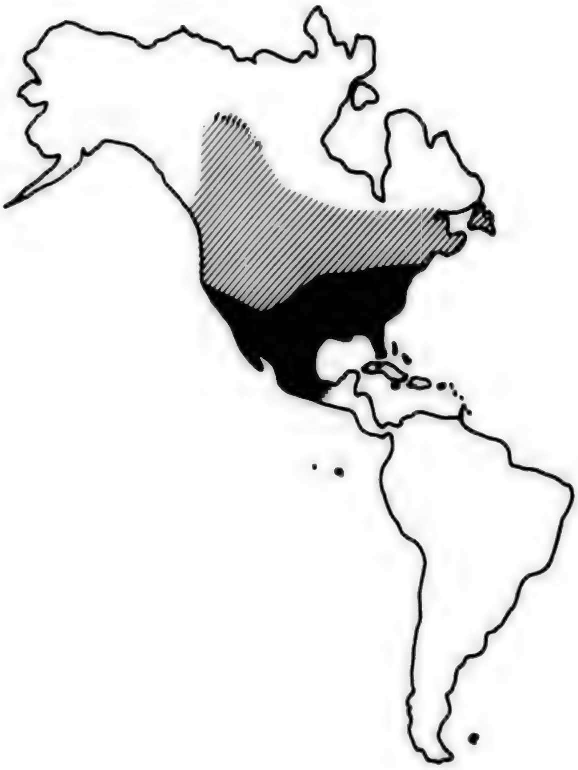
Icterus galbula - includes bullockii
abeillei
Northern Oriole



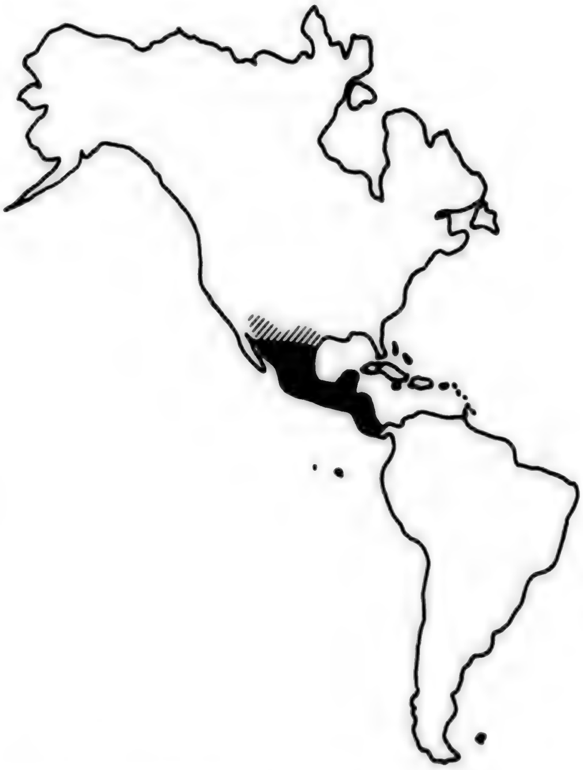
Euphagus cyanocephalus
Brewer's Blackbird



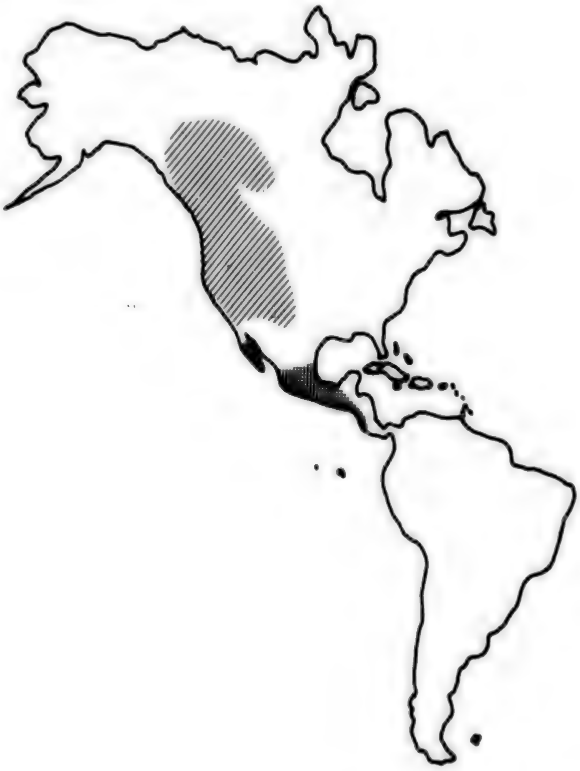
Molothrus ater
Brown-headed Cowbird



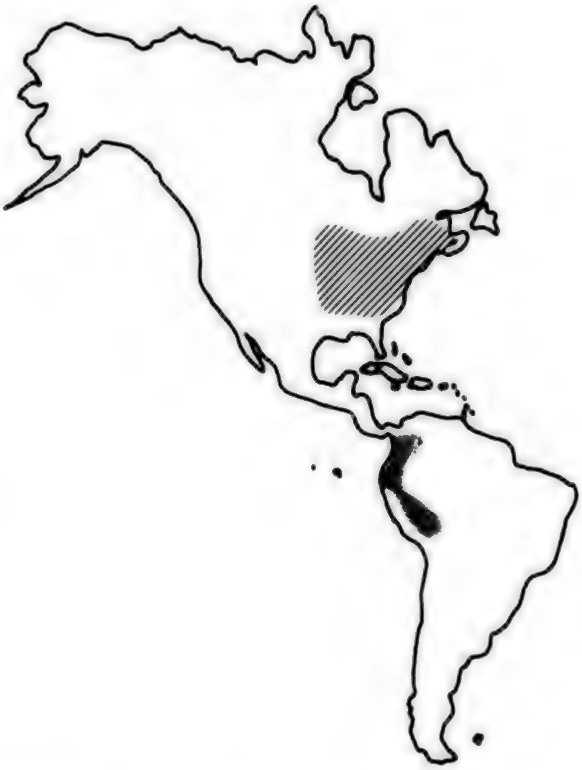
Molothrus aeneus
Bronzed Cowbird



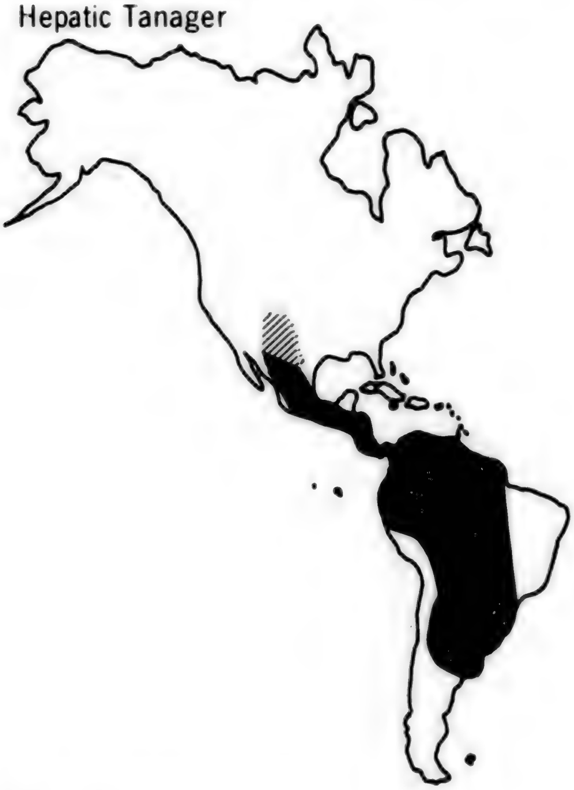
Piranga ludoviciana
Western Tanager



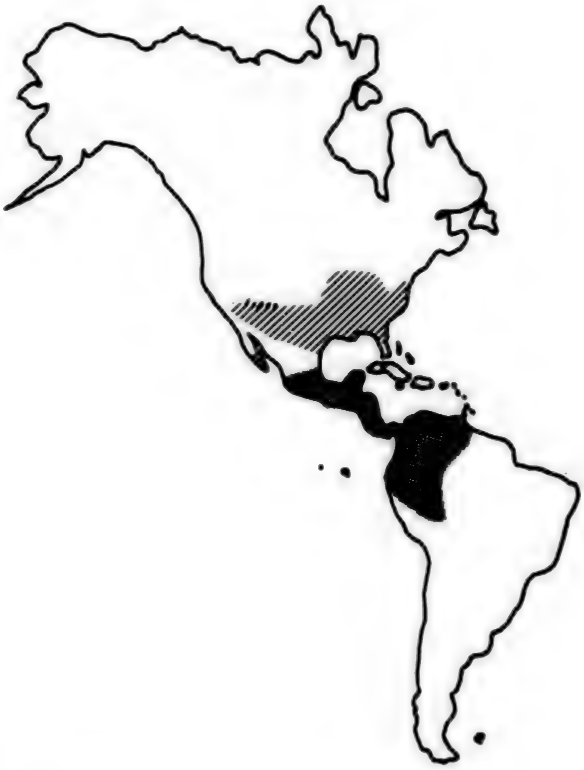
Piranga olivacea
Scarlet Tanager



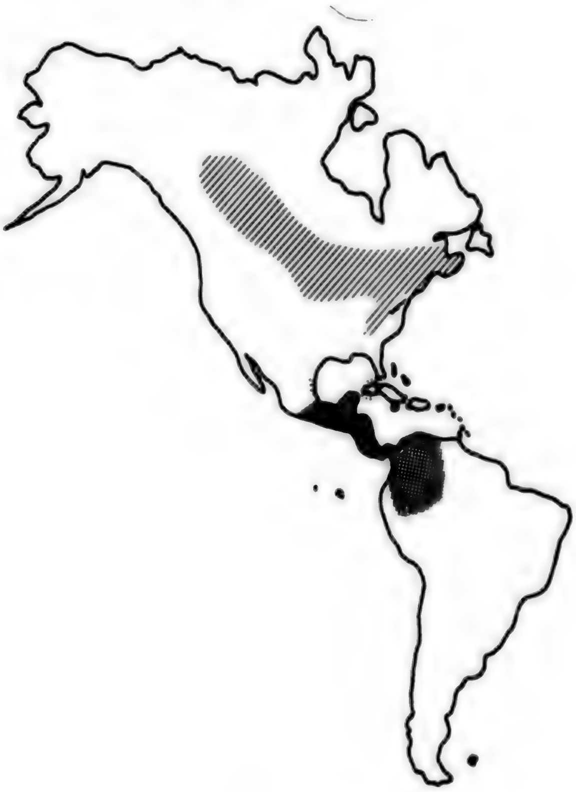
Piranga flava - includes several South American forms (886)
Hepatic Tanager



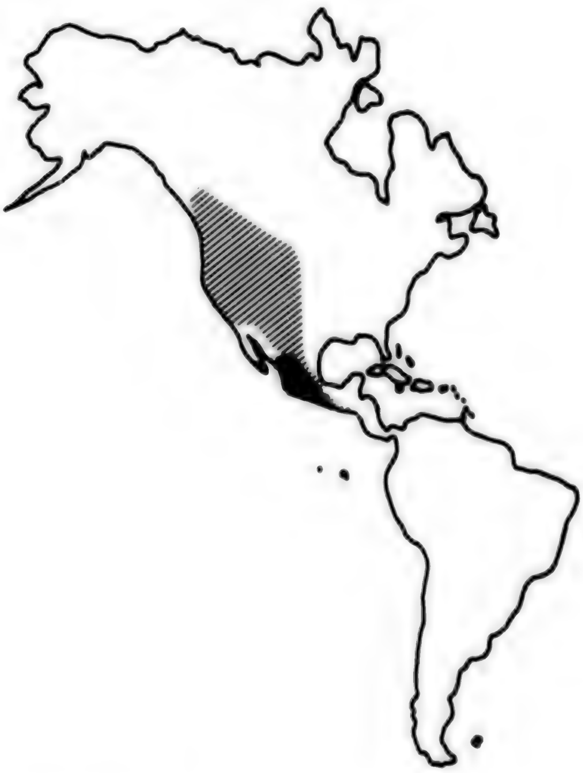
Piranga rubra
Summer Tanager



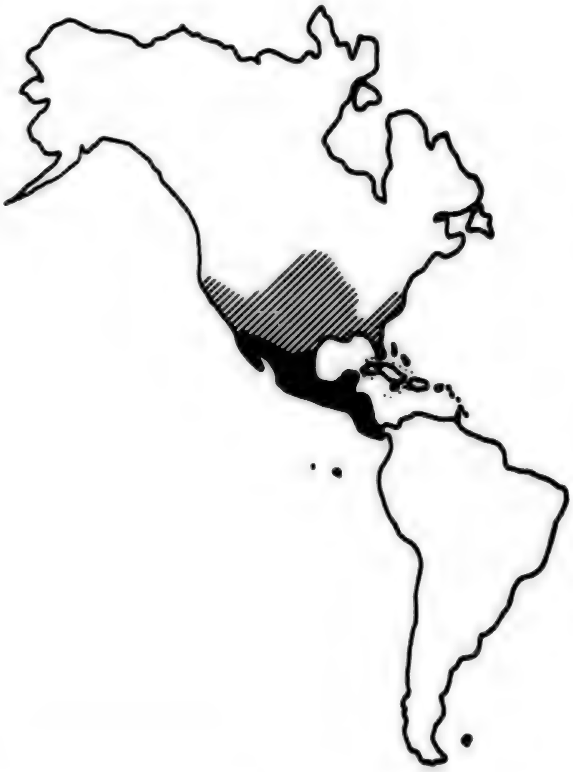
Pheucticus ludovicianus
Rose-breasted Grosbeak



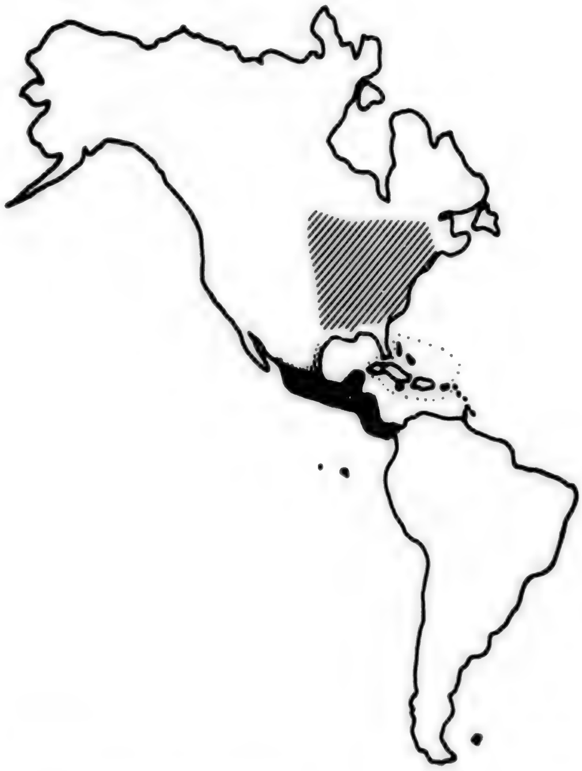
Pheucticus melanocephalus
Black-headed Grosbeak



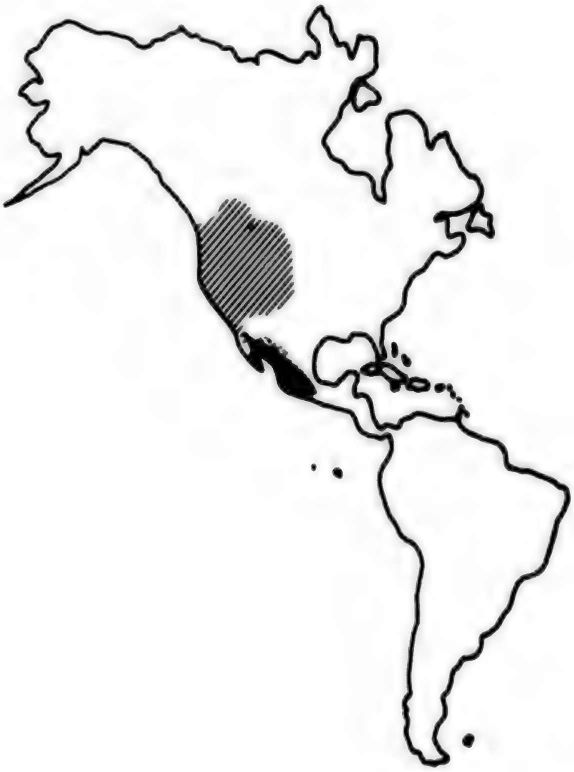
Guiraca caerulea
Blue Grosbeak



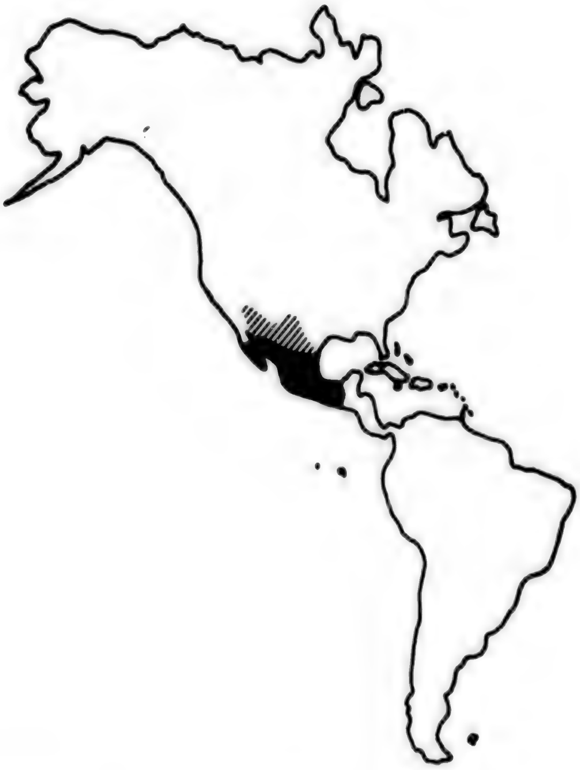
Passerina cyanea
Indigo Bunting



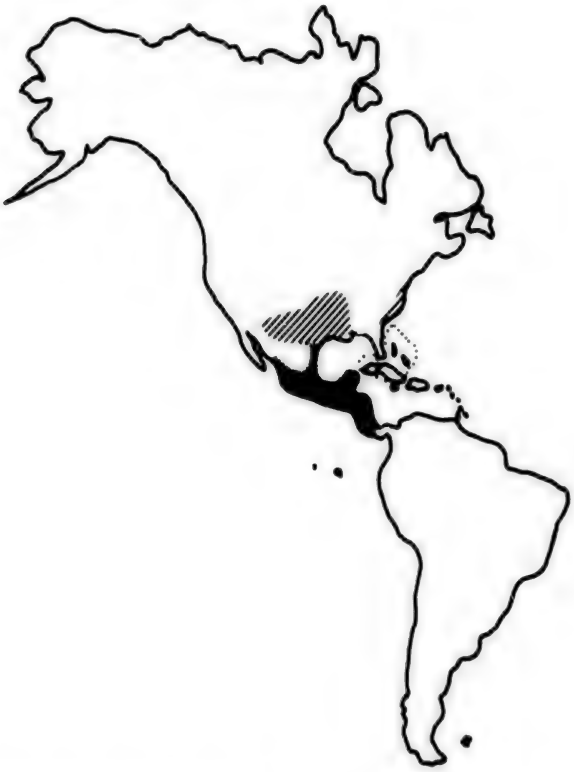
Passerina amoena
Lazuli Bunting



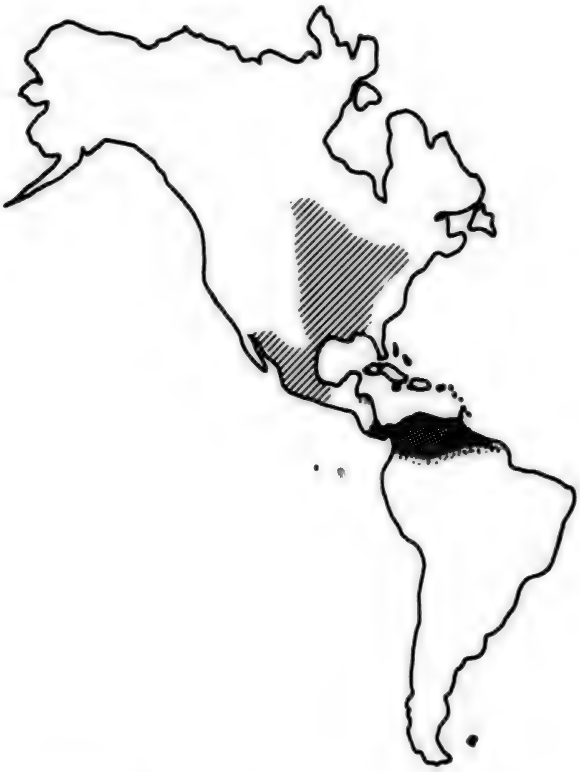
Passerina versicolor
Varied Bunting



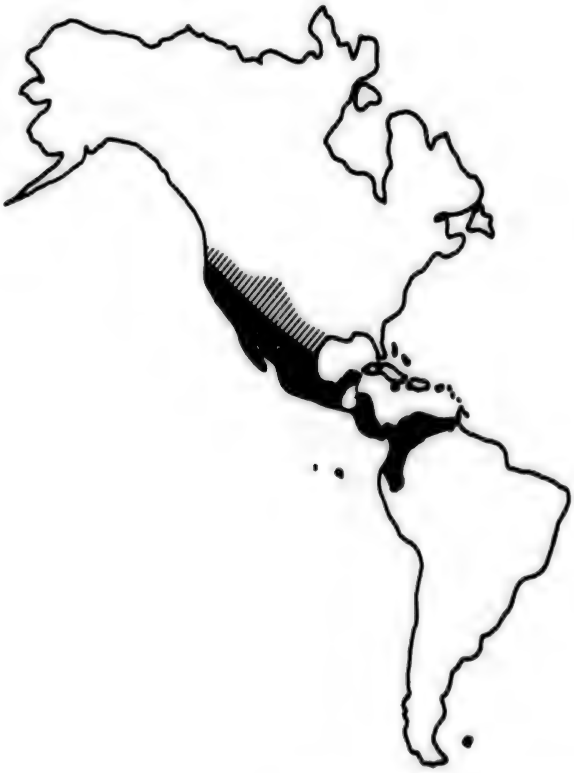
Passerina ciris
Painted Bunting



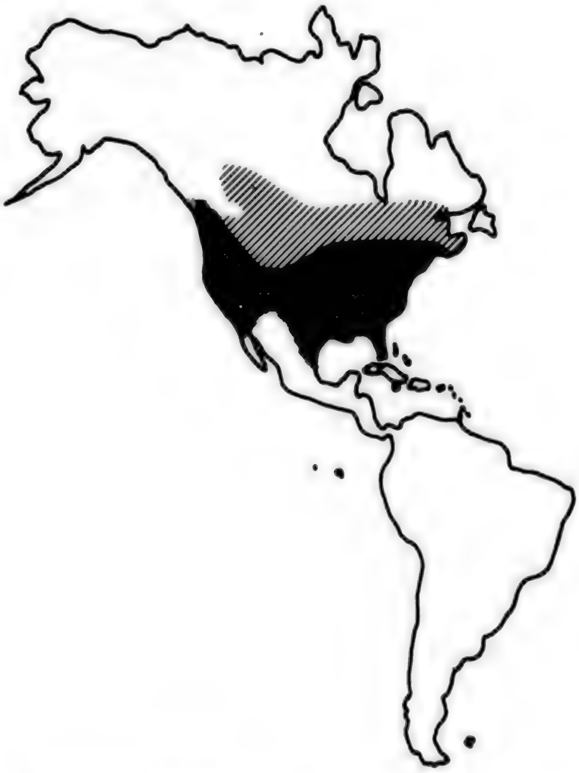
Spiza americana
Dickcissel



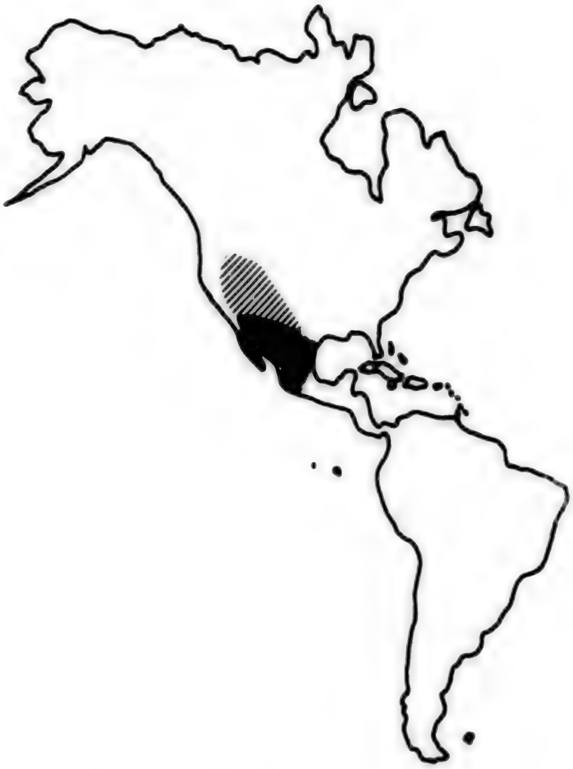
Carduelis psaltria
Lesser Goldfinch



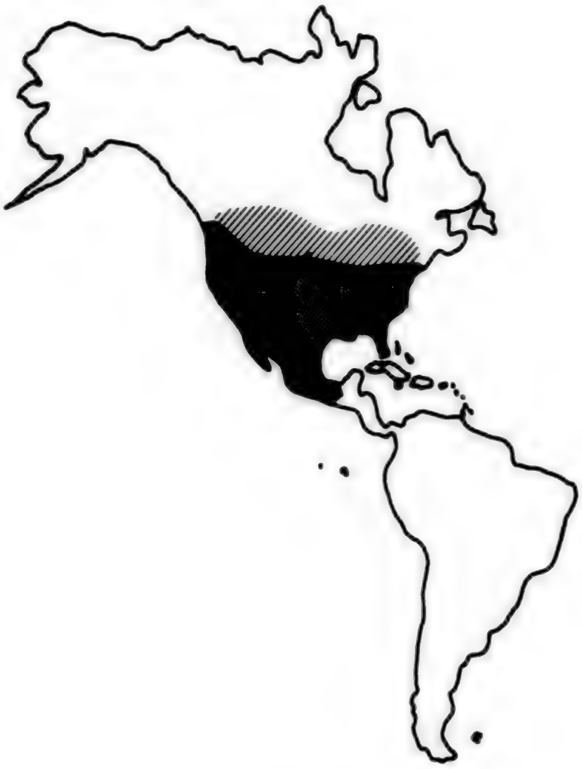
Carduelis tristis
American Goldfinch



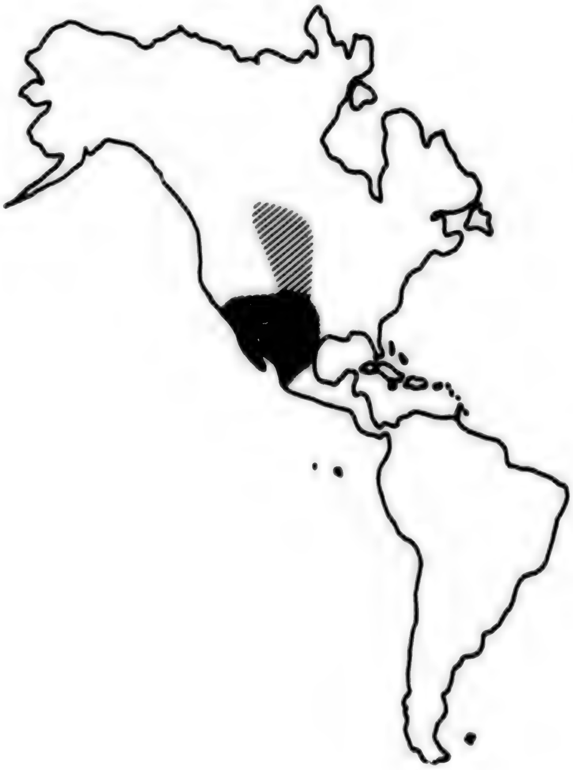
Pipilo chlorurus
Green-tailed Towhee



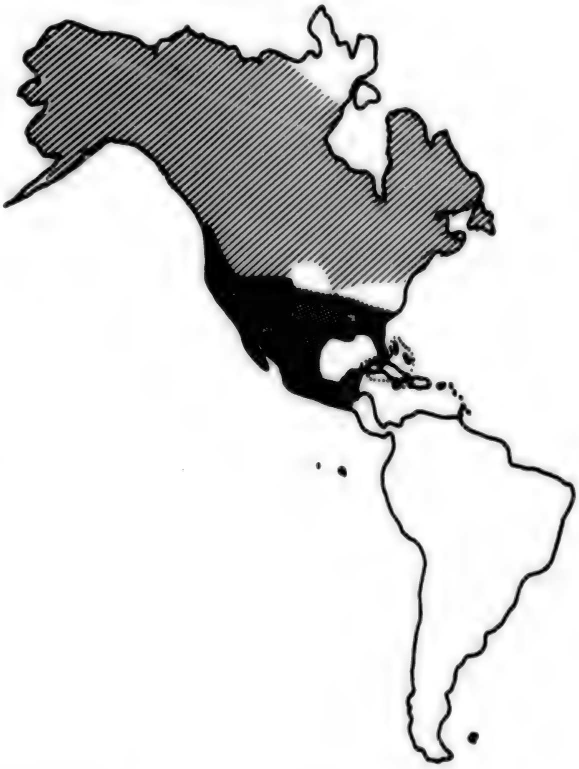
Pipilo erthrophthalmus
Rufous-sided Towhee



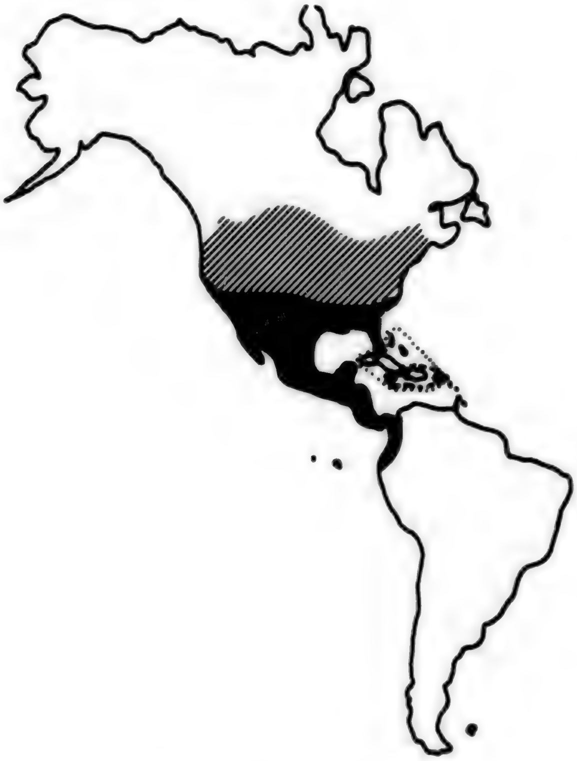
Calamospiza melanocorys
Lark Bunting



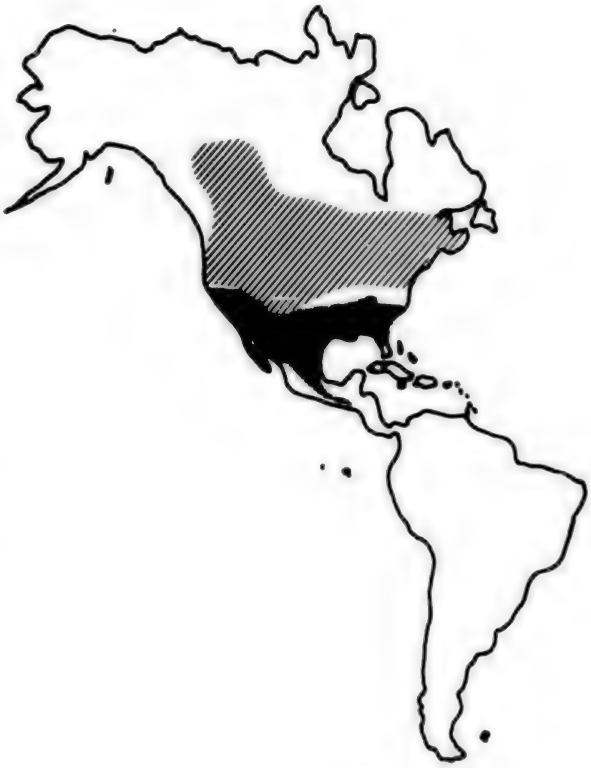
Passerculus sandwichensis
Savannah Sparrow



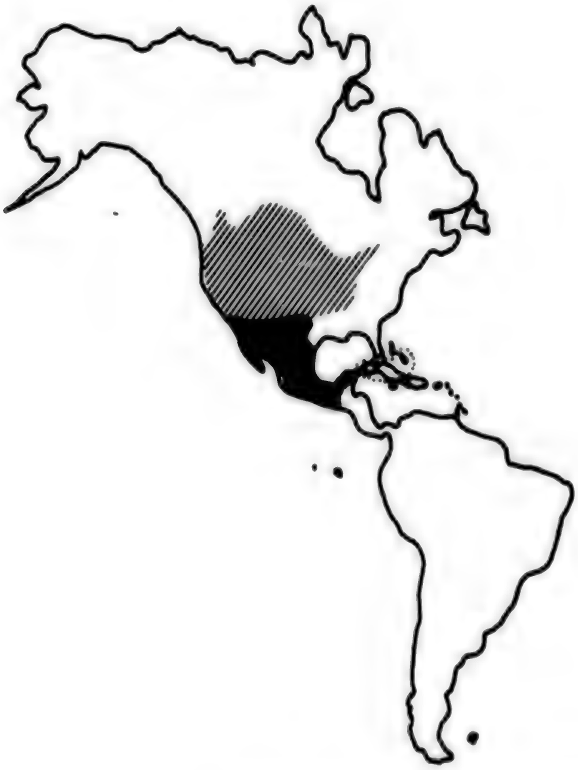
Ammodramus savannarum - Central American population very local; Florida population nearly extirpated
Grasshopper Sparrow



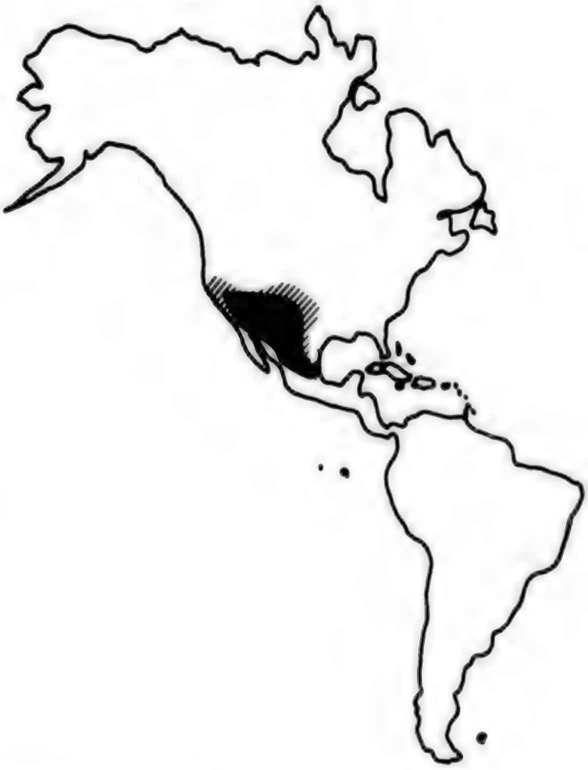
Pooecetes gramineus
Vesper Sparrow



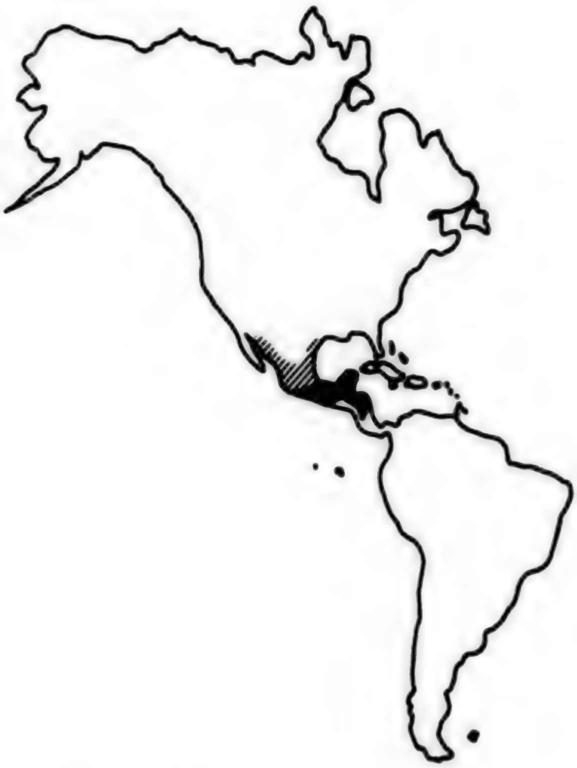
Chondestes grammacus
Lark Sparrow



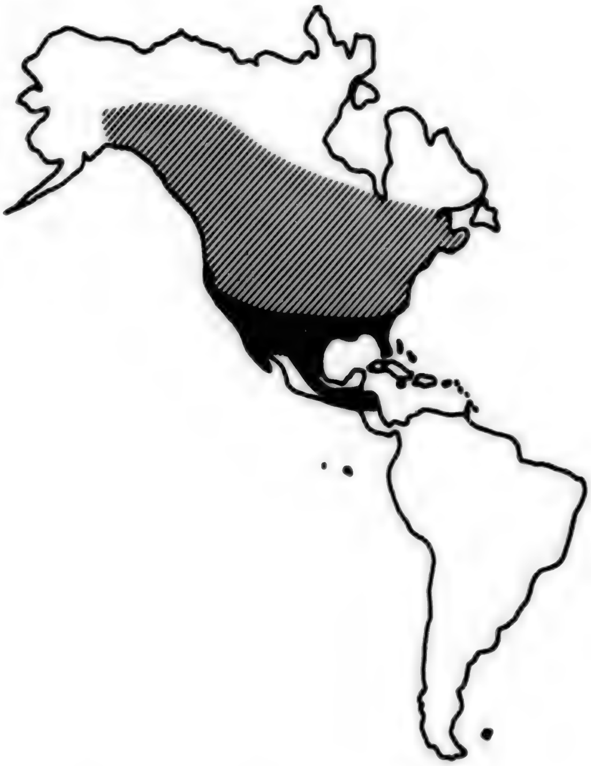
Aimophila ruficeps
Rufous-crowned Sparrow



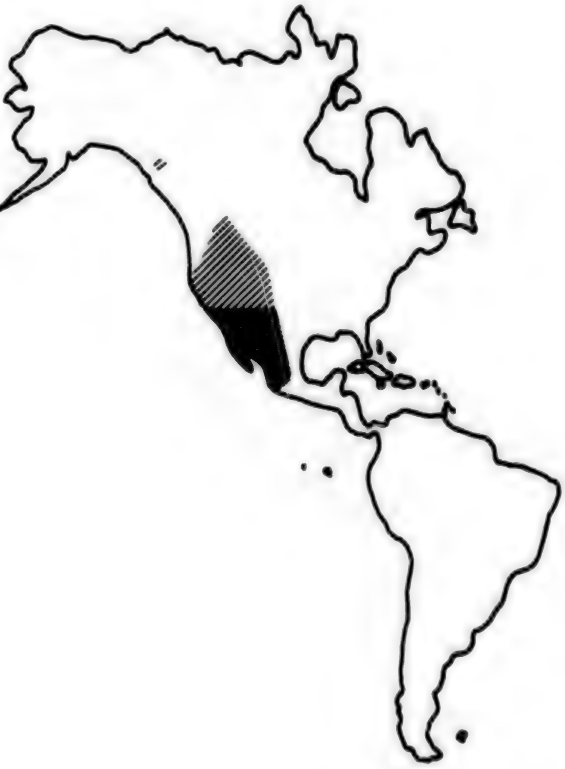
Aimophila botterii - includes petencia; winter range poorly known
Botteri's Sparrow



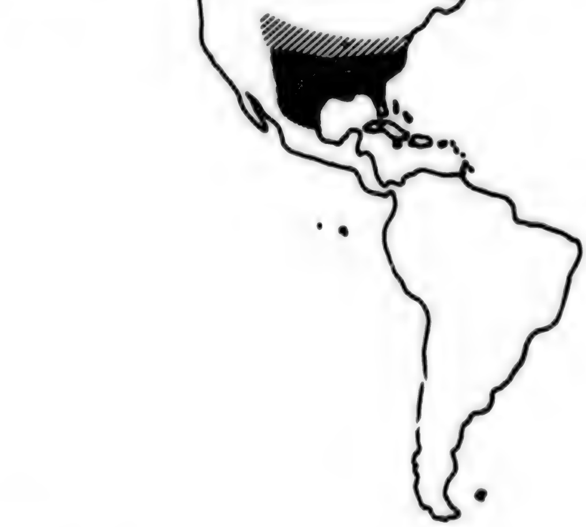
Spizella passerina
Chipping Sparrow



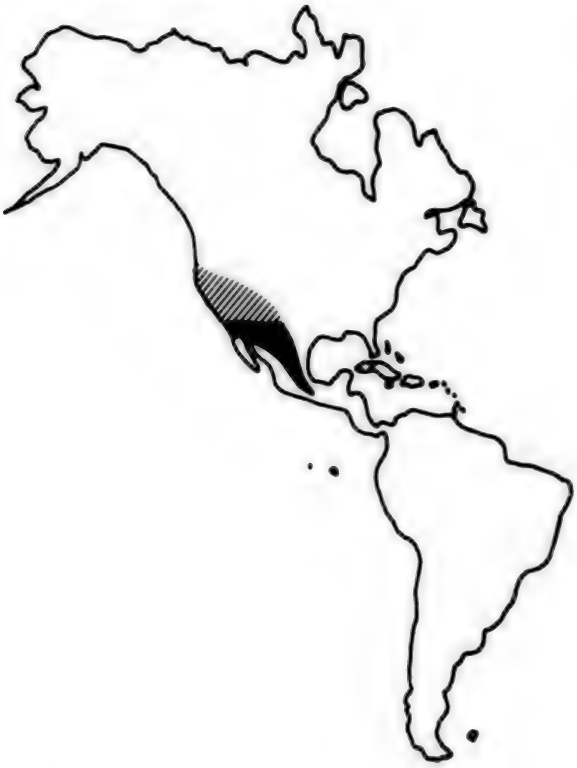
Spizella breweri
Brewer's Sparrow



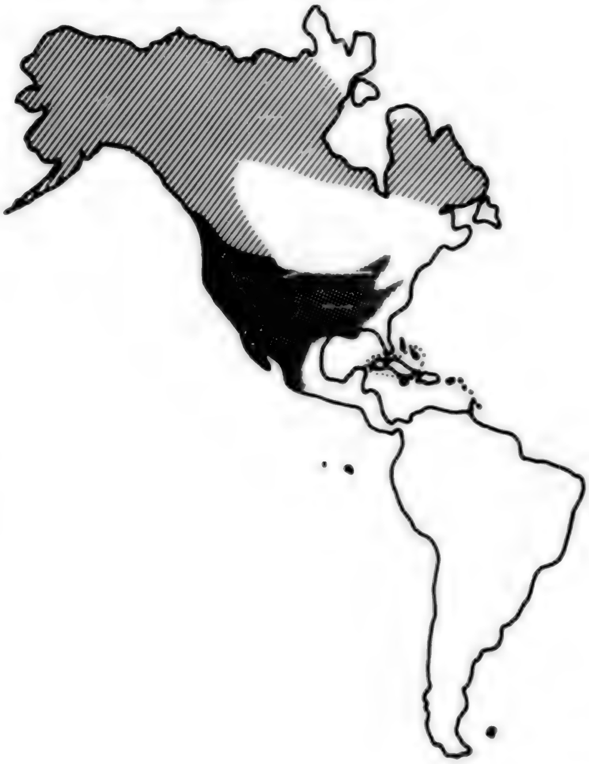
Spizella pallida
Field Sparrow



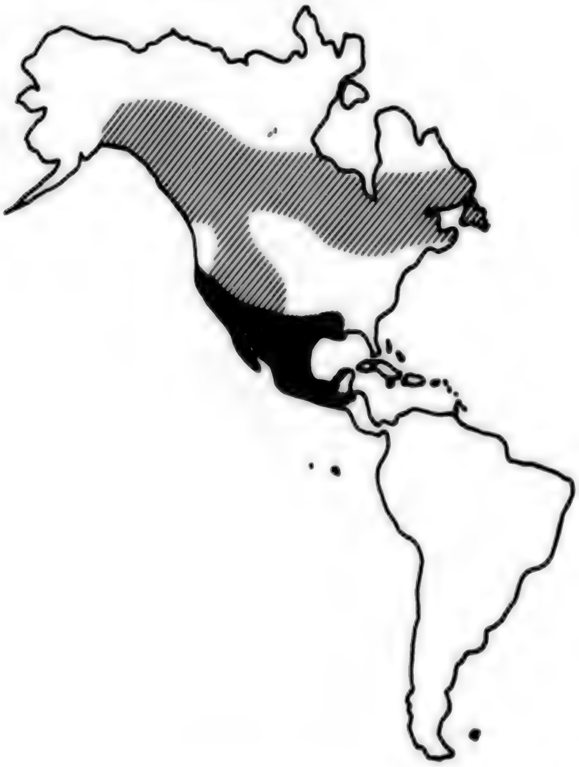
Spizella atrogularis
Black-chinned Sparrow



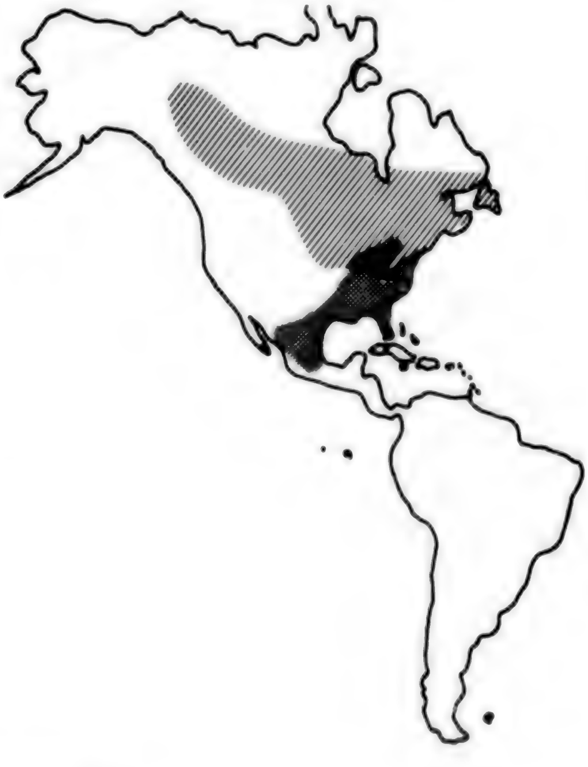
Zonotrichia leucophrys
White-crowned Sparrow



Melospiza lincolnii
Lincoln's Sparrow



Melospiza georgiana
Swamp Sparrow



APPENDIX 5

Distribution and Status of Nearctic Migrants in the Neotropics by Region and Country.

This Appendix is divided into three sections according to the major regional divisions of the neotropics: South America - pp. 243-256; Middle America - pp. 257-270; West Indies - pp. 271-284. The symbols used to express the status of each species in the region are as follows:

B - Breeding or permanent resident population of the species can be found in the country.

T - Transient populations of the species can be found in the country during certain seasons of the year.

W - Wintering populations of the species can be found in the country during certain seasons of the year.

* - Few records.

? - Status unknown.

	Colombia	Venezuela	Guyana	Surinam	French Guiana	Brazil	Ecuador	Peru	Bolivia	Paraguay	Uruguay	Chile	Argentina
PODICIPEDIDAE													
Podiceps nigricollis	B												
Aechmophorus occidentalis													
Podilymbus podiceps	B	B	B	B	B	B	B	B	B	B	B	B	B
PELECANIDAE													
Pelecanus erythrorhynchos													
P. occidentalis	B	B	B	B	B	B	B	B				B	
PHALACROCORACIDAE													
Phalacrocorax auritus													
P. olivaceus	B	B	B	B	B	B	B	B	B	B	B	B	B
ANHINGIDAE													
Anhinga anhinga	B	B	B	B	B	B	B	B	B	B	B		B
ARDEIDAE													
Ardea herodias	W	W											
Butorides striatus	BW	BW	B	B	B	B	B	B	B	B	B	B	B
Florida caerulea	BW	BW	B	B	B	B	B	B			?		
Bubulcus ibis	B	B	B	B	B	B	B	B	B	B	?	B	B
Dichromanassa rufescens		W											
Casmerodius albus	B	B	B	B	B	B	B	B	B	B	B	B	B
Egretta thula	B	B	B	B	B	B	B	B	B	B	B	B	B
Hydranassa tricolor	B	B	B	B	B	B	B	B					
Nycticorax nycticorax	B	B	B	B	B	B	B	B	B	B	B	B	B
Nyctanassa violacea	B	B	B	B	B	B	B	B					
Ixobrychus exilis	BW	B	B	B	B	B	B	B	B	B			B
Botaurus lentiginosus													
CICONIIDAE													
Mycteria americana	B	B	B	B	B	B	B	B	B	B	B		B

	Colombia	Venezuela	Guyana	Surinam	French Guiana	Brazil	Ecuador	Peru	Bolivia	Paraguay	Uruguay	Chile	Argentina
THRESKIORNITHIDAE													
Plegadis falcinellus	*												
P. chihi	B	B				B		B	B	B	B	B	B
Eudocimus albus	B	B					B	B					
Ajaia ajaja	B	B	B	B	B	B	B	B	B	B	B	*	B
ANATIDAE													
Anser albifrons													
Chen caerulescens													
Dendrocygna autumnalis	B	B	B	B		B	B	B	B	B			B
D. bicolor	B	B	B	B	B	B	B	B		B	B	B	B
Anas platyrhynchos													
A. strepera													
A. acuta	W	*		*									
A. crecca	*												
A. discors	TW	TW	TW	TW	TW	TW	TW	W			W		W
A. cyanoptera	BW	BW				B	B?	B	B	B	B	B	
A. americana	W	*											
A. clypeata	W												
Aix sponsa													
Aythya americana													
A. collaris		*											
A. valisineria													
A. affinis	W	W					W						
Oxyura jamaicensis	B						B	B	B			B	B
Lophodytes cucullatus													
Mergus serrator													
CATHARTIDAE													
Cathartes aura	B	B	B	B	B	B	B	B	B	B	B	B	B
Coragyps atratus	B	B	B	B	B	B	B	B	B	B	B	B	B

	Colombia	Venezuela	Guyana	Surinam	French Guiana	Brazil	Ecuador	Peru	Bolivia	Paraguay	Uruguay	Chile	Argentina
ACCIPITRIDAE													
Elanoides forficatus	B	B	B	B	B	B	BW	B	B	B	?		B
Ictinia mississippiensis	B	B	B	B	B	B	B	B	B	B	B		BW
Accipiter striatus	B	B				B	B	B	B	B	B		B
A. cooperii	*												
Buteo jamaicensis													
B. platypterus	TW	TW			TW	W	TW	W	W				
B. swainsoni	TW	TW				TW	TW	W	W		W		W
B. regalis													
Buteogallus anthracinus													
Circus cyaneus	BW	B*				B	B	B	B	B	B	B	B
PANDIONIDAE													
Pandion haliaetus	TW	TW	TW	TW	TW	TW	W	TW	W	TW	TW	W	W
FALCONIDAE													
Falco mexicanus													
F. peregrinus	TW	TW	TW	TW	TW	BTW	TW	W	W	W	W	BW	BW
F. columbarius	W	W					W						
F. sparverius	B	B	B	B	B	B	B	B	B	B	B	B	B
GRUIDAE													
Grus americana													
G. canadensis													
RALLIDAE													
Rallus elegans													
R. limicola	B						B	B					
Porzana carolina	W	W	W				TW	W					
Laterallus jamaicensis	?							B				B	B
Porphyrula martinica	B	B	B	B	B	B	B	B	B	B	B	B	B

	Colombia	Venezuela	Guyana	Surinam	French Guiana	Brazil	Ecuador	Peru	Bolivia	Paraguay	Uruguay	Chile	Argentina
Gallinula chloropus	B	B	B	B	B	B	B	B	B	B	B	B	B
Fulica americana	B?						B	B	B			B	B
HAEMATOPODIDAE													
Haematopus palliatus	B	B	B	B	B	B	B	B			B	B	B
CHARADRIIDAE													
Charadrius semipalmatus	TW	TW	TW	TW	TW	TW	TW	W			T	TW	W
C. melodus							*						
C. alexandrinus								B				B	
C. wilsonia	B	B	B	B	B	B	B	B					
C. vociferus	W	*					W	B				B	
C. montana													
Pluvialis dominica	T	T	T	T	T	TW	T	T	W	W	W	T	W
P. squatarola	TW	TW	TW	TW	TW	W	TW	W			W	W	W
SCOLOPACIDAE													
Arenaria interpres	TW	TW	TW	TW	TW	TW	TW	TW			W	W	W
Capella gallinago	BW	BW	BW	BW	BW	B	BW	B	B	B	B	B	B
Numenius americanus													
N. phaeopus	TW	TW	TW	TW	TW	TW	TW	TW					
N. borealis						W					W		W
Bartramia longicauda	T	T	T	T	T	W	T	T	T	W	W	*	W
Actitis macularia	TW	TW	TW	TW	TW	TW	TW	TW	TW	TW	TW	W	W
Tringa solitaria	TW	TW	TW	TW	TW	W	TW	TW	W	W	T		W
T. melanoleuca	TW	TW	TW	TW	TW	TW	TW	TW	TW	TW	TW	W	W
T. flavipes	TW	TW	TW	TW	TW	TW	TW	TW	TW	TW	TW	W	W
Heteroscelus incanus								*	*				
Catoptrophorus semipalmatus		?W	TW	TW	TW	TW	TW	TW				W	
Aphriza virgata	TW						W	W				W	
Calidris canutus	?	T				TW	T	TW			TW	W	W
C. melanotos	T	T	?	T	?	T	T	W	W	W	W	W	W

	Colombia	Venezuela	Guyana	Surinam	French Guiana	Brazil	Ecuador	Peru	Bolivia	Paraguay	Uruguay	Chile	Argentina
C. fuscicollis	TW	TW	TW	TW	TW	TW	TW	TW	TW	TW	?	W	W
C. bairdii	T	T	?	?	?	?	W	W	W	W	T	W	W
C. minutilla	TW	TW	TW	TW	TW	TW	TW	TW			?	W	W
C. pusilla	TW	TW	TW	TW	TW	TW	TW	TW		W	W	W	W
C. mauri	W	W	W	W	W		W	W					
C. alba	TW	TW	TW	TW	TW	TW	TW	TW	TW	TW	TW	W	W
Limnodromus griseus	TW	TW	TW	TW	TW	TW	W	W					
L. scolopaceus	*						*	*					*
Micropalama himantopus	T	T		T		W	T	T	W	W	W	W	W
Tryngites subruficollis	T	T				TW	T	T	TW	TW	TW		W
Limosa fedoa							*	*				*	
L. haemastica	T	T	T	T	T	W	T	T		W	TW	W	W
RECURVIROSTRIDAE													
Recurvirostra americana													
Himantopus mexicanus	B	B	B	B	B	B	B	B	B	B	B	B	B
PHALAROPODIDAE													
Phalaropus fulicarius	*						*	*		*		W	*
Steganopus tricolor	T					W	T	W	W	W	W	W	W
Lobipes lobatus								*				*	*
LARIDAE													
Larus glaucescens													
L. occidentalis													
L. argentatus													
L. californicus													
L. delawarensis													
L. atricilla	W	W	W	W	W	W	W	W					
L. pipixcan	TW						W	W					
L. philadelphia													
Xema sabini	W						W	W					

	Colombia	Venezuela	Guyana	Surinam	French Guiana	Brazil	Ecuador	Peru	Bolivia	Paraguay	Uruguay	Chile	Argentina
Gelochelidon nilotica	W	W	B?	W	B?	B?	BW	B			B	?	B
Sterna forsteri													
S. hirundo	TW	TW	TW	TW	TW	TW	TW	W			?		W
S. dougallii		BW				*							
S. fuscata		W				W						W	
S. albifrons		TW	TW	TW	TW	TW							
S. maxima	W	W					W	W			W		W
S. elegans							TW	W				W	
S. sandvicensis	TW	TW		TW		W	TW				W		W
S. caspia	W												
Chlidonias niger	W	W	W	W			W	W				*	
RYNCHOPIDAE													
Rynchops niger	B	B	B	B	B	B	B	B			B	B	B
COLUMBIDAE													
Columba leucocephala													
C. fasciata	B	B					B	B	B				B
C. flavirostris													
Zenaida asiatica							B	B				B	
Z. macroura	*												
CUCULIDAE													
Coccyzus minor													
C. americanus	W	W	W	W	W	W	W	W	W	W	W		W
C. erythropthalmus	W	W					W	W					
STRIGIDAE													
Micrathene whitneyi													
Athene cunicularia	B	B	B			B	B	B	B	B	B	B	B
Asio flammeus	B	B	B	B		B	B	B	B	B	B	B	B

	Colombia	Venezuela	Guyana	Surinam	French Guiana	Brazil	Ecuador	Peru	Bolivia	Paraguay	Uruguay	Chile	Argentina
CAPRIMULGIDAE													
Caprimulgus carolinensis	W	*											
C. vociferus													
Phalaenoptilus nuttallii													
Chordeiles minor	?TW	TW	TW	TW	TW	TW	TW	TW	TW	TW	TW	W	W
C. acutipennis	BW	B	B	B	B	B	B	B	B	B		B	
APODIDAE													
Cypseloides niger													
Chaetura pelagica	BT	BT	B	B	B	BW	BT	W	B	B			
C. vauxi		B											
Aeronautes saxatalis													
TROCHILIDAE													
Archilochus colubris													
A. alexandri													
Calypte costae													
C. anna													
Selasphorus platycercus													
S. rufus													
S. sasin													
Stellula calliope													
Eugenes fulgens													
Lampornis clemenciae													
Amazilia yucatanensis													
A. verticalis													
Cynanthus latirostris													
TROGONIDAE													
Trogon elegans													

	Colombia	Venezuela	Guyana	Surinam	French Guiana	Brazil	Ecuador	Peru	Bolivia	Paraguay	Uruguay	Chile	Argentina
ALCEDINIDAE													
Megaceryle alcyon	*	*	*										
PICIDAE													
Sphyrapicus varius													
S. thyroideus													
TYRANNIDAE													
Tyrannus tyrannus	TW	TW	TW			TW	TW	TW	TW				W
T. dominicensis	W	W	W	W	W								
T. melancholicus	B	B	B	B	B	B	B	B	B	B	B		B
T. verticalis													
T. crassirostris													
T. vociferans													
Muscivora forficata													
Pitangus sulphuratus	B	B	B	B	B	B	B	B	B	B	B		B
Myiodynastes luteiventris	T						T	W	W				
Myiarchus crinitus	W	*											
M. tyrannulus	B	B	B	B	B	B		B	B	B			
M. cinerascens													
M. tuberculifer	B	B	B	B	B	B	B	B	B	B			B
Sayornis phoebe													
S. saya													
Empidonax flaviventris													
E. virescens	W	W					W						
E. traillii	TW	TW					W	W	W				W
E. minimus													
E. hammondii													
E. oberholseri													
E. wrightii													

	Colombia	Venezuela	Guyana	Surinam	French Guiana	Brazil	Ecuador	Peru	Bolivia	Paraguay	Uruguay	Chile	Argentina
E. difficilis													
E. fulvifrons													
Contopus pertinax													
C. sordidulus	W	W				W	W	W					
C. virens	?TW	W				W	W	W					
Nuttallornis borealis	TW	TW				W	W	W					
Pyrocephalus rubinus	B	B	B			B	B	B	B	B	W	B	B
Camptostoma imberbe													
HIRUNDINIDAE													
Tachycineta thalassina													
Iridoprocne bicolor	*		*										
Riparia riparia	W	W	W			W	W	W	W	W	?W		W
Stelgidopteryx ruficollis	B	B	B	B	B	B	B	B	B	B	B	B	B
Hirundo rustica	TW	TW	TW	TW	TW	TW	TW	TW	TW	TW	T	W	W
Petrochelidon pyrrhonota	T	T				W				W	W		W
P. fulva							B	B					
Progne subis	BW	BW	BW	BW	BW	BW	B	B	B	B	B	B	B
TROGLODYTIDAE													
Troglodytes aedon	B	B	B	B	B	B	B	B	B	B	B	B	B
Cistothorus palustris													
C. platensis	B	B	B			B	B	B	B	B		B	B
MIMIDAE													
Dumtella carolinensis	*												
Oreoscoptes montanus													
TURDIDAE													
Turdus migratorius													
Hylocichla mustelina			*										
Catharus guttatus													

	Colombia	Venezuela	Guyana	Surinam	French Guiana	Brazil	Ecuador	Peru	Bolivia	Paraguay	Uruguay	Chile	Argentina
C. ustulatus	W	W	W				W	W	W	W	W		W
C. minimus	W	W	W				W	W	W				
C. fuscescens	W	W	W				W						
Sialia sialis													
S. mexicana													
S. currucoides													
Myadestes townsendi													
SYLVIIDAE													
Polioptila caerulea													
Regulus calendula													
MOTACILLIDAE													
Anthus spinoletta													
... spragueii													
BOMBYCILLIDAE													
Bombycilla cedrorum	*	*											
LANIIDAE													
Lanius ludovicianus													
VIREONIDAE													
Vireo atricapilla													
V. griseus													
V. bellii													
V. vicinior													
V. flavifrons	W	W											
V. solitarius													
V. altiloquus	W	W	W			W							

	Colombia	Venezuela	Guyana	Surinam	French Guiana	Brazil	Ecuador	Peru	Bolivia	Paraguay	Uruguay	Chile	Argentina
V. olivaceus	BTW	BTW	B	B	B	BW	BW	BW	BW	B	W	W	B
V. philadelphicus	*												
V. gilvus	B	B				B	B	B					
PARULIDAE													
Mniotilta varia	W	W					W						
Protonotaria citrea		W		*									
Limnothlypis swainsonii													
Helmitheros vermivorus													
Vermivora chrysoptera	W	W											
V. pinus	*												
V. bachmanii													
V. peregrina	W	W											
V. celata													
V. ruficapilla													
V. virginiae													
V. crissalis													
V. luciae													
Parula americana	B	B	B			B	B	B	B	B	B		B
Peucedramus taeniatus													
Dendroica petechia	BW	BW	W	W	W	W	BW	BW					
D. magnolia	*												
D. tigrina													
D. caerulescens	*												
D. coronata	*												
D. nigrescens													
D. townsendi													
D. virens	*												
D. chrysoparia													
D. occidentalis													
D. cerulea	W	W					W	W	W				

	Colombia	Venezuela	Guyana	Surinam	French Guiana	Brazil	Ecuador	Peru	Bolivia	Paraguay	Uruguay	Chile	Argentina
D. fusca	W	W					W	W					
D. dominica													
D. graciae													
D. pensylvanica	*	*											
D. castanea	W	W											
D. striata	W	W	W	W	W	W	W	W			*	*	*
D. pinus													
D. kirtlandii													
D. discolor													
D. palmarum													
Seiurus aurocapillus	W	W					W	W					
S. noveboracensis	W	W	W	W	W								
S. motacilla	W	W											
Oporornis formosus	W	W											
O. agilis	W	W				W							
O. philadelphia	W	W					W						
Geothlypis trichas	*	*											
Icteria virens													
Cardellina rubrifrons													
Wilsonia citrina													
W. pusilla													
W. canadensis	W	W				W	W	W					
Setophaga ruticilla	W	W	W	W		W	W						
Myioborus pictus													
ICTERIDAE													
Dolichonyx oryzivorus	T	T	T	T	T	W	T	W	W	W			W
Sturnella magna	B	B	B	B	B	B							
S. neglecta													
Xanthocephalus xanthocephalus													
Agelaius phoeniceus													

	Colombia	Venezuela	Guyana	Surinam	French Guiana	Brazil	Ecuador	Peru	Bolivia	Paraguay	Uruguay	Chile	Argentina
Icterus spurius	W	W											
I. graduacauda													
I. cucullatus													
I. parisorum													
I. galbula	W	W											
Euphagus cyanocephalus													
Molothrus ater													
M. aeneus													
THRAUPIDAE													
Piranga ludoviciana													
P. olivacea	W						W	W	W				
P. flava	B	B	B	B	B	B	B	B	B	B	B		B
P. rubra	W	W				W	W	W	W				
FRINGILLIDAE													
Pheucticus ludovicianus	W	W					W	W					
P. melanocephalus													
Guiraca caerulea													
Passerina cyanea	*	*											
P. amoena													
P. versicolor													
P. ciris													
Spiza americana	W	W	W	W	W								
Carduelis psaltria	B	B					B	B					
C. tristis													
Pipilo chlorurus													
P. erythrophthalmus													
Calamospiza melanocorys													
Passerculus sandwichensis													
Ammodramus savannarum	B						B						

BEST DOCUMENT AVAILABLE

	Colombia	Venezuela	Guyana	Surinam	French Guiana	Brazil	Ecuador	Peru	Bolivia	Paraguay	Uruguay	Chile	Argentina
Pooecetes gramineus													
Chondestes grammacus													
Aimophila ruficeps													
A. botterii													
Spizella passerina													
S. breweri													
S. pallida													
S. atrogularis													
Zonotrichia leucophrys													
Melospiza lincolnii													
M. georgiana													

	Mexico	Guatemala	Belize	Honduras	El Salvador	Nicaragua	Costa Rica	Panama
PODICIPEDIDAE								
Podiceps nigricollis	BTW	TW						
Aechmophorus occidentalis	BW							
Podilymbus podiceps	BTW	BTW	BTW	BTW	BTW	BTW	BTW	BTW
PELECANIDAE								
Pelecanus erythrorhynchos	W	W	*					
P. occidentalis	BTW	BTW	BTW	BTW	BTW	BTW	BTW	BTW
PHALACROCORACIDAE								
Phalacrocorax auritus	BW		*					
P. olivaceus	BTW	B??	B??	B??	B??	B??	B??	B??
ANHINGIDAE								
Anhinga anhinga	BTW	B??	B??	B??	B??	B??	B??	B??
ARDEIDAE								
Ardea herodias	BTW	?TW	TW	TW	TW	TW	TW	TW
Butorides striatus	BTW	BTW	BTW	BTW	BTW	BTW	BTW	BTW
Florida caerulea	BTW	?TW	?TW	BTW	BTW	BTW	BTW	BTW
Bubulcus ibis	BTW	???	???	B??	B??	B??	B??	B??
Dichromanassa rufescens	BTW	?TW	*		?			
Casmerodius albus	BTW	BTW	?TW	TW	BTW	TW	TW	TW
Egretta thula	BTW	BTW	?TW	BTW	BTW	BTW	BTW	BTW
Hydranassa tricolor	BTW	BTW	?TW	BTW	B	BTW	BTW	BTW
Nycticorax nycticorax	BTW	BT?	BTW	BTW	B	BTW	BTW	BTW
Nyctanassa violacea	BTW	BTW	BTW	BTW	BTW	BTW	BTW	BTW
Ixobrychus exilis	BTW	BTW	?TW	BTW	BTW	BTW	BTW	BTW
Botaurus lentiginosus	TW	TW	*	TW	TW	TW	W	*
CICONIIDAE								
Mycteria americana	BTW	???	???	B??	B??	B??	B??	B??

	Mexico	Guatemala	Belize	Honduras	El Salvador	Nicaragua	Costa Rica	Panama
THRESKIORNITHIDAE								
Plegadis falcinellus							*	W
P. chihi	BTW	TW		*	TW		*	
Eudocimus albus	B??	B??	*	BTW	W	?	?	B
Ajaia ajaja	B??	???	*	B	B	B	B	???
ANATIDAE								
Ansar albifrons	W							
Chen caerulescens	W			*				
Dendrocygna autumnalis	BW	?TW	B??	B	B	???	B??	B
D. bicolor	BW	W		B				*
Anas platyrhynchos	BW	TW		*			?	*
A. strepera	W							
A. acuta	TW	TW	TW	TW		?	W	W
A. crecca	W	W	*	W				
A. discors	W	TW	W	TW	TW	?	TW	TW
A. cyanoptera	BTW	TW		T		?	*	W
A. americana	TW	TW		W		?	W	W
A. clypeata	TW	TW		W	W	?	W	W
Aix sponsa	W							
Aythya americana	BW	W						
A. collaris	TW	TW		W			W	W
A. valisineria	W	W		W				
A. affinis	TW	TW	W	TW	TW	?	TW	W
Oxyura jamaicensis	BW	W		TW				
Lophodytes cucullatus	W							
Mergus serrator								
CATHARTIDAE								
Cathartes aura	BTW	BTW	BTW	BTW	BTW	B??	BTW	BTW
Coragyps atratus	BTW	BTW	BTW	BTW	BTW	B??	BTW	BTW

	Mexico	Guatemala	Belize	Honduras	El Salvador	Nicaragua	Costa Rica	Panama
ACCIPITRIDAE								
Elanoides forficatus	BTW	BTW	BT	BT		B??	B??	BT?
Ictinia mississippiensis	BT	BT		BT	B	BT	BT	BTW
Accipiter striatus	BW	TW		TW	W	?	TW	W
A. cooperii	BW	TW		*			*	
Buteo jamaicensis	BTW	BTW	B??	BTW	B??	B??	BTW	BW
B. platypterus	TW	TW	*	TW	TW	?	TW	TW
B. swainsoni	TW	TW		TW	TW	TW	TW	TW
B. regalis	W							
Buteogallus anthracinus	BTW	B	B	B	B	B	B	B
Circus cyaneus	TW	TW	T	TW	TW	?	TW	TW
PANDIONIDAE								
Pandion haliaetus	BTW	BTW	BW	?TW	?TW	???	TW	TW
FALCONIDAE								
Falco mexicanus	BW							
F. peregrinus	BTW	TW	TW	TW	T	?	T	TW
F. columbarius	W	TW	T	TW		?	TW	TW
F. sparverius	BTW	BTW	TW	BTW	TW	BTW	TW	TW
GRUIDAE								
Grus americana	W							
G. canadensis	W							
RALLIDAE								
Rallus elegans	BW							
R. limicola	BTW	W						
Porzana carolina	BTW	TW	TW	TW		TW	TW	W
Laterallus jamaicensis	BTW	W	B??	*				
Porphyrula martinica	B??	B??	B	B??	B	?	B	B

	Mexico	Guatemala	Belize	Honduras	El Salvador	Nicaragua	Costa Rica	Panama
Gallinula chloropus	B??	?TW	?	???	??W	?	B	B??
Fulica americana	BTW	BTW	W	BTW	TW	?	TW	W
HAEMATOPODIDAE								
Haematopus palliatus	B??	?		T		?	?	B??
CHARADRIIDAE								
Charadrius semipalmatus	TW	TW	TW	TW	TW	TW	TW	TW
C. melodus								
C. alexandrinus	BTW			*			*	*
C. wilsonia	BTW	?	B??	TW	TW	?	BTW	BTW
C. vociferus	BTW	TW	TW	TW	TW	?	TW	TW
C. montana	W							
Pluvialis dominica	T	T				?	T	TW
P. squatarola	TW	TW	TW	TW	TW	TW	TW	TW
SCOLOPACIDAE								
Arenaria interpres	TW	TW	TW	TW	TW	TW	TW	TW
Capella gallinago	TW	TW	TW	TW	TW	TW	TW	TW
Numenius americanus	W	W		*			*	
N. phaeopus	TW	TW	*	TW	TW	T	TW	TW
N. borealis		*						
Bartramia longicauda	T	T	*	T	T	T	T	T
Actitis macularia	TW	TW	TW	TW	TW	T	TW	TW
Tringa solitaria	TW	TW	TW	TW	TW	TW	TW	TW
T. melanoleuca	TW	TW	T	TW	T	T?	TW	TW
T. flavipes	TW	TW	T?	TW	TW	T?	TW	TW
Heteroscelus incanus	TW			TW				*
Catoptrophorus semipalmatus	TW	TW	??	TW	W	?	TW	TW
Aphriza virgata	TW	TW		TW	TW	TW	TW	TW
Calidris canutus	T	*		T			T	T?
C. melanotos	T	T	T	T	T	T	T	T

	Mexico	Guatemala	Belize	Honduras	El Salvador	Nicaragua	Costa Rica	Panama
C. fuscicollis	T	T	T	T	T	T	*	T
C. bairdii	T				T		T	T
C. minutilla	TW	TW	TW	TW	TW	TW	TW	TW
C. pusilla	TW	TW	?	TW	TW	?	TW	W
C. mauri	TW	TW	?	TW	TW	?	TW	TW
C. alba	TW	TW	TW	TW	TW	TW	TW	TW
Limnodromus griseus	TW	TW		TW	TW	?	TW	TW
L. scolopaceus	TW	TW					TW	*
Micropalama himantopus	T	T		T		?		T
Tryngites subruficollis	T		*	T	T	T	T	T
Limosa fedoa	TW	TW	*	TW			*	TW
L. haemastica	T							
RECURVIROSTRIDAE								
Recurvirostra americana	BW	W	?	W				
Himantopus mexicanus	BTW	BTW	?	TW	TW	?	?	B??
PHALAROPODIDAE								
Phalaropus fulicarius	T							
Steganopus tricolor	T	T		T	T		T	
Lobipes lobatus	T	T		T			*	TW
LARIDAE								
Larus glaucescens	W							
L. occidentalis	W							
L. argentatus	TW	TW	W	TW	?			W
L. californicus	W							
L. delawarensis	TW	TW	?		TW			W
L. atricilla	BTW	TW	?	???	TW	?	TW	TW
L. pipixcan	T	T	*	TW	TW	T?	TW	TW
L. philadelphia	W							*
Xema sabini	T							TW

	Mexico	Guatemala	Belize	Honduras	El Salvador	Nicaragua	Costa Rica	Panama
Gelochelidon nilotica	BT	TW	?	TW		?	T	TW
Sterna forsteri	W	W		W				
S. hirundo	TW	TW	*	T	?	?	*	TW
S. dougallii			?	B				
S. fuscata	BTW		B??	???		*	*	???
S. albifrons	BT	?TW	B??	T		?	*	T
S. maxima	BTW	TW	TW	???	TW	?	TW	W
S. elegans	BT	T			TW			TW
S. sandvicensis	BTW	TW	BW	?				TW
S. caspia	TW	*	*	T		?		W
Chlidonias niger	T	T	T	T	T	T	T	TW
RYNCHOPIDAE								
Rynchops niger	BTW	*		TW	TW	?		W
COLUMBIDAE								
Columba leucocephala	BW		BW					BW
C. fasciata	BW	BW		BW	BW	BW	B	B
C. flavirostris	BTW	B	?	B	B	B	B	
Zenaida asiatica	BTW	BTW		BTW	BTW	BTW	BTW	???
Z. macroura	BTW	TW	TW	TW	TW	TW	BTW	BTW
CUCULIDAE								
Coccyzus minor	B	?	B	BT	B	?	B	?
C. americanus	BT	T	?T	T	T	?	T	T
C. erythropthalmus	T	T	*	T		?	T	T
STRIGIDAE								
Micrathene whitneyi	BTW							
Athene cunicularia	BTW	TW	?	*	?TW		*	*
Asio flammeus	W	W					*	

	Mexico	Guatemala	Belize	Honduras	El Salvador	Nicaragua	Costa Rica	Panama
CAPRIMULGIDAE								
Caprimulgus carolinensis	TW	TW		TW	T	?	TW	W
C. vociferus	BTW	BTW	TW	BTW	BTW	?	*	*
Phalaenoptilus nuttallii	BTW							
Chordeiles minor	BT	?T	BT	?T	?	BT?	T	T
C. acutipennis	BTW	?TW	T	TW	TW	?	TW	BTW
APODIDAE								
Cypseloides niger	BT			???		?	?	
Chaetura pelagica	T	T	*	T		?	T	T
C. vauxi	BTW	BTW	?TW	BTW	B??	B??	B	B
Aeronautes saxatalis	BTW	B	B??	B	TW			
TROCHILIDAE								
Archilochus colubris	TW	TW	TW	TW	TW	TW	TW	W
A. alexandri	BW							
Calypte costae	BW							
C. anna	BW							
Selasphorus platycercus	BTW	B						
S. rufus	W							
S. sasin	W							
Stellula calliope	W							
Eugenes fulgens	BTW	B		B	B	B	B	B
Lampornis clemenciae	BTW							
Amazilia yucatanensis	BTW	B	B??	*				
A. verticalis	BTW							
Cynanthus latirostris	BTW							
TROGONIDAE								
Trogon elegans	BTW	B		B	B	B	B	

	Mexico	Guatemala	Belize	Honduras	El Salvador	Nicaragua	Costa Rica	Panama
ALCEDINIDAE								
Megaceryle alcyon	TW	TW	TW	TW	TW	TW	TW	W
PICIDAE								
Sphyrapicus varius	TW	TW	TW	TW	TW	TW	TW	W
S. thyroideus	W							
TYRANNIDAE								
Tyrannus tyrannus	T	T	T	TW	T	T	T	T?
T. dominicensis				T		?	?	W
T. melancholicus	BTW	B	B	B	B	B	B	B
T. verticalis	TW	TW		TW	TW	?	*	
T. crassirostris	B	B						
T. vociferans	BTW	W		*				
Muscivora forficata	TW	TW	TW	TW	TW	TW	TW	W
Pitangus sulphuratus	BTW	B	B	B	B	B	B	B
Myiodynastes luteiventris	BT	BT	BT	BT	BT	BT	BT	T
Myiarchus crinitus	TW	TW	TW	TW	TW	TW	TW	W
M. tyrannulus	BTW	B	B	B	B	B		
M. cinerascens	BTW	BTW		BTW	B	?	B??	
M. tuberculifer	BTW	B	B	B	B	B	B	B
Sayornis phoebe	W							
S. saya	BTW							
Empidonax flaviventris	TW	TW	TW	TW	TW	TW	TW	W
E. virescens	T	T	T	T		?	TW	TW
E. traillii	T	TW		TW	TW	?	TW	TW
E. minimus	TW	TW	TW	TW	TW	TW	TW	W
E. hammondii	TW	TW		W	W	?		
E. oberholseri	TW							
E. wrightii	TW							

	Mexico	Guatemala	Belize	Honduras	El Salvador	Nicaragua	Costa Rica	Panama
E. difficilis	BTW	BTW		B	B	?	B	B
E. fulvifrons	BTW	B		B	T			
Contopus pertinax	BTW	BW	B??	B	?	?		
C. sordidulus	BT	BT		BT	BT	BT	T	TW
C. virens	T	T	T?	T		?	T	T?
Nuttallornis borealis	TW	TW	TW	T	T	TW	TW	TW
Pyrocephalus rubinus	BTW	B??	BW	B??		?		*
Camptostoma imberbe	BTW	B	B	B	B	?	B	
HIRUNDINIDAE								
Tachycineta thalassina	BTW	TW		W	W		*	*
Iridoprocne bicolor	TW	TW	TW	TW		?	*	W
Riparia riparia	T	T	T	T	T	T	T	T
Stelgidopteryx ruficollis	BTW	BTW	BTW	BTW	BTW	BTW	BTW	BTW
Hirundo rustica	BTW	TW	T	TW	T	?	TW	T
Petrochelidon pyrrhonota	BT	T	*	T	T		T	T
P. fulva	BTW							
Progne subis	BTW	BTW	BTW	BT	B	BTW	B	BTW
TROGLODYTIDAE								
Troglodytes aedon	BTW	B	B	B	B	B	B	B
Cistothorus palustris	BTW							
C. platensis	BTW	B	B	B		B	B	B
MIMIDAE								
Dumtella carolinensis	TW	TW	TW	TW		TW	TW	TW
Oreoscoptes montanus	W							
TURDIDAE								
Turdus migratorius	BTW	W						
Hylocichla mustelina	TW	TW	TW	TW	TW	TW	TW	TW
Catharus guttatus	BTW	W						

	Mexico	Guatemala	Belize	Honduras	El Salvador	Nicaragua	Costa Rica	Panama
C. ustulatus	TW	TW	T	TW	TW	?	TW	TW
C. minimus	T	T	T	T		?	TW	T
C. fuscescens	T	T	T	T		?	T	T
Sialia sialis	BTW	B	B	B	B	B		
S. mexicana	BTW							
S. currucoides	W							
Myadestes townsendi	BTW							
SYLVIIDAE								
Polioptila caerulea	BTW	TW	?W	W		?		
Regulus calendula	W	W						
MOTACILLIDAE								
Anthus spinoletta		W	TW		*	?		
A. spragueii	W							
BOMBYCILLIDAE								
Bombycilla cedrorum	TW	TW	TW	TW	TW	?	W	W
LANIIDAE								
Lanius ludovicianus	BTW							
VIREONIDAE								
Vireo atricapilla	BTW							
V. griseus	BTW	TW	TW	TW				*
V. bellii	BTW	TW		TW	T	?		
V. vicinior	W							
V. flavifrons	TW	TW	TW	TW	TW	TW	TW	TW
V. solitarius	BTW	BTW	???	BTW	BW	?		*
V. altiloquus			*					W

	Mexico	Guatemala	Belize	Honduras	El Salvador	Nicaragua	Costa Rica	Panama
V. olivaceus	BT	BT	BT	BT	T	?	BTW	BT
V. philadelphicus	TW	TW	*	TW	W	?	TW	TW
V. gilvus	BTW	BTW		BTW	BTW	B??	B??	B
PARULIDAE								
Mniotilta varia	TW	TW	TW	TW	TW	TW	TW	TW
Protonotaria citrea	TW	TW	T	TW		?	TW	TW
Limnothlypis swainsonii	W		W	W				
Helmitheros vermivorus	TW	TW	TW	TW	TW	TW	TW	TW
Vermivora chrysoptera	T	TW	TW	TW		?	TW	TW
V. pinus	TW	TW	TW	TW		TW	TW	W
V. bachmanii								
V. peregrina	TW	TW	TW	TW	TW	TW	TW	TW
V. celata	TW	W	W					
V. ruficapilla	TW	W	W					
V. virginiae	W							
V. crissalis	W							
V. luciae	W							
Parula americana	BTW	BTW	TW	B??	T?	B?	B*	B
Peucedramus taeniatus	BTW	B		B	B			
Dendroica petechia	BTW	BTW	BTW	BTW	BTW	BTW	BTW	BTW
D. magnolia	TW	TW	TW	TW	TW	TW	TW	TW
D. tigrina	TW		*	T		*	*	*
D. caerulescens	TW	TW	W					*
D. coronata	BTW	BTW	W	TW	TW	TW	TW	W
D. nigrescens	W	*						
D. townsendi	TW	TW		TW	TW	TW	TW	*
D. virens	TW	TW	TW	TW	TW	TW	TW	W
D. chrysoparia	T	TW		W		?		
D. occidentalis	TW	TW		TW	W	?	*	*
D. cerulea	T	T	T	T		T	T	T

	Mexico	Guatemala	Belize	Honduras	El Salvador	Nicaragua	Costa Rica	Panama
D. fusca	T	T	T	T	TW	?	TW	TW
D. dominica	TW	TW	TW	TW	TW	T	W	*
D. graciae	BTW	B	B	B	B	B		
D. pensylvanica	TW	TW	T	TW		TW	TW	W
D. castanea	T	T	T?	T		?	TW	TW
D. striata	T							
D. pinus								
D. kirtlandii	*							
D. discolor	TW	*	W	TW	T	*		
D. palmarum	W		T	W		W		*
Seiurus aurocapillus	TW	TW	TW	TW	TW	TW	TW	TW
S. noveboracensis	TW	TW	TW	TW	TW	TW	TW	TW
S. motacilla	TW	TW	T?	TW	W	?	TW	TW
Oporornis formosus	TW	TW	TW	TW	T	TW	TW	TW
O. agilis			*					
O. philadelphia	TW	TW	T	TW	TW	TW	TW	TW
Geothlypis trichas	BTW	TW	TW	TW	TW	TW	TW	W
Icteria virens	BTW	TW	TW	TW	TW	TW	TW	TW
Cardellina rubrifrons	W	W		W				
Wilsonia citrina	TW	TW	TW	TW	W	TW	TW	W
W. pusilla	TW	TW	TW	TW	TWW	TW	TW	T
W. canadensis	T	T	T?	TW	T	?	T	TW
Setophaga ruticilla	TW	TW	TW	TW	TW	TW	TW	TW
Myioborus pictus	BTW	B		B	B	?		
ICTERIDAE								
Dolichonyx oryzivorus	T	T	T	T		?	*	T
Sturnella magna	BTW	B	B	B	B	B	B	B
S. neglecta	W							
Xanthocephalus xanthocephalus	W							*
Agelaius phoeniceus	BTW	B	B??	B	B	B	B	

	Mexico	Guatemala	Belize	Honduras	El Salvador	Nicaragua	Costa Rica	Panama
Icterus spurius	BTW	TW	TW	TW	TW	TW	TW	TW
I. graduacauda	BTW	*	B					
I. cucullatus	BTW		B					
I. parisorum	BTW							
I. galbula	BTW	TW	TW	TW	TW	TW	TW	TW
Euphagus cyanocephalus	W	*						
Molothrus ater	BTW							
M. aeneus	BTW	B	B	B	B	B	B	B
THRAUPIDAE								
Piranga ludoviciana	TW	TW		TW	TW	TW	TW	*
P. olivacea	T	T	T	T	T	T?	T?	TW
P. flava	BTW	BW	B	B	B	B	B	B
P. rubra	TW	TW	TW	TW	TW	TW	TW	TW
FRINGILLIDAE								
Pheucticus ludovicianus	TW	TW	TW	TW	TW	TW	TW	TW
P. melanocephalus	BTW							
Guiraca caerulea	BTW	BTW	TW	BTW	BT?	BTW	BTW	W
Passerina cyanea	TW	TW	TW	TW	TW	TW	TW	W
P. amoena	BTW							
P. versicolor	BTW	B						
P. ciris	TW	TW	TW	TW	T	?	TW	W
Spiza americana	TW	?	T	TW	?	?	TW	TW
Carduelis psaltria	BTW	?		B	B	B	B	B
C. tristis	W							
Pipilo chlorurus	W							
P. erythrophthalmus	BTW	B						
Calamospiza melanocorys	W							
Passerculus sandwichensis	BTW	TW	W	W	TW			
Ammodramus savannarum	BTW	?TW	BTW	B	TW	B	B	B??

	Mexico	Guatemala	Belize	Honduras	El Salvador	Nicaragua	Costa Rica	Panama
Pooecetes gramineus	W	W						
Chondestes grammacus	W	W		*	W			
Aimophila ruficeps	BTW							
A. botterii	BTW	B	B	B		B	B	
Spizella passerina	BTW	B	B	B	B	B		
S. breweri	W							
S. pallida	W	W						
S. atrogularis	BTW							
Zonotrichia leucophrys	W							
Melospiza lincolnii	TW	W	*	TW	W			
M. georgiana	W							

	Bahamas	Cuba	Jamaica	Hispaniola	Puerto Rico	Lesser Antilles	Trinidad & Tobago
PODICIPEDIDAE							
Podiceps nigricollis							
Aechmophorus occidentalis							
Podilymbus podiceps	BW	BW	BW	BW	BW	BW	BW
PELECANIDAE							
Pelecanus erythrorhynchos	*	*				*	
P. occidentalis	BTW	BTW	BTW	BTW	BTW	BTW	BTW
PHALACROCORACIDAE							
Phalacrocorax auritus	BW	BW					
P. olivaceus	B	B					
ANHINGIDAE							
Anhinga anhinga		B					
ARDEIDAE							
Ardea herodias	BW	BW	BW	BW	BW	W	W
Butorides striatus	BW	BW	BW	BW	BW	BW	BW
Florida caerulea	BW	BW	BW	BW	BW	BW	BW
Bubulcus ibis	B	B	B	B	B	B	B
Dichromanassa rufescens	BW	BW	BW	BW	BW		
Casmerodius albus	BW	BW	BW	BW	BW	BW	BW
Egretta thula	BW	BW	BW	BW	BW	W	W
Hydranassa tricolor	BW	BW	BW	BW	BW	?	?
Nycticorax nycticorax	BW	BW	BW	BW	BW	BW	BW
Nyctanassa violacea	BW	BW	BW	BW	BW	BW	BW
Ixobrychus exilis	BW	BW	BW	BW	BW		BW
Botaurus lentiginosus	W	W	W	W	W		
CICONIIDAE							
Mycteria americana		?	?	?			

	Bahamas	Cuba	Jamaica	Hispaniola	Puerto Rico	Lesser Antilles	Trinidad & Tobago
THRESKIORNITHIDAE							
Plegadis falcinellus		B	B	B			
P. chihi							
Eudocimus albus	B	B	B	B	B		
Ajaia ajaja		B		B			
ANATIDAE							
Anser albifrons	*	*					
Chen caerulescens							
Dendrocygna autumnalis						W	
D. bicolor							
Anas platyrhynchos		W	W				
A. strepera		W	W				
A. acuta	W	W	W	W	W	W	
A. crecca	W	W	W	W	W	W	TW
A. discors	TW	TW	TW	TW	TW	TW	TW
A. cyanoptera							
A. americana	TW	TW	TW	TW	TW	TW	W
A. clypeata	TW	TW	TW	TW	TW	TW	TW
Aix sponsa	W	BW	W				
Aythya americana	W	W	W				
A. collaris	TW	TW	TW	TW	TW	W	W
A. valisineria		W					
A. affinis	TW	TW	TW	TW	TW	W	W
Oxyura jamaicensis	BW	B	B	B	B	B	B
Lophodytes cucullatus		W				*	
Mergus serrator	*	*			*		
CATHARTIDAE							
Cathartes aura	B	B	B	B	B		B
Coragyps atratus							

	Bahamas	Cuba	Jamaica	Hispaniola	Puerto Rico	Lesser Antilles	Trinidad & Tobago
ACCIPITRIDAE							
Elanoides forficatus		T	T				T
Ictinia mississippiensis							
Accipiter striatus	W	B?		B?	B?		
A. cooperii							
Buteo jamaicensis	B?	B?	B?	B?	B?	B?	
B. platypterus		B		B	B	B	
B. swainsoni							
B. regalis							
Buteogallus anthracinus		B				B	B
Circus cyaneus	W	W	W	W	W	W	W
PANDIONIDAE							
Pandion haliaetus	BW	BW	W	W	W	W	W
FALCONIDAE							
Falco mexicanus							
F. peregrinus	TW	TW	TW	TW	TW	TW	TW
F. columbarius	TW	TW	TW	TW	TW	TW	TW
F. sparverius	BW	BW	B	B	B	B	B
GRUIDAE							
Grus americana							
G. canadensis		B					
RALLIDAE							
Rallus elegans		B					
R. limicola							
Porzana carolina	TW	TW	TW	TW	TW	TW	TW
Laterallus jamaicensis	T	W	W	W			
Porphyrula martinica	B	B	B	B	B	B	B

	Bahamas	Cuba	Jamaica	Hispaniola	Puerto Rico	Lesser Antilles	Trinidad & Tobago
Gallinula chloropus	B	B	B	B	B	B	B
Fulica americana	BW	BW	BW	BW	BW	W	W
HAEMATOPODIDAE							
Haematopus palliatus	B	B		B	B	B	
CHARADRIIDAE							
Charadrius semipalmatus	TW	TW	TW	TW	TW	TW	TW
C. melodus	W	W	W	W	W		
C. alexandrinus	B	B	B	B	B		
C. wilsonia	BTW	BTW	BTW	BTW	BTW	BTW	BTW
C. vociferus	BTW	BTW	BTW	BTW	BTW	TW	TW
C. montana							
Pluvialis dominica	T	T	T	T	T	T	T
P. squatarola	TW	TW	TW	TW	TW	TW	TW
SCOLOPACIDAE							
Arenaria interpres	TW	TW	TW	TW	TW	TW	TW
Capella gallinago	TW	TW	TW	TW	TW	TW	TW
Numenius americanus		W	W			W	
N. phaeopus	TW	TW	TW	TW	TW	TW	TW
N. borealis							
Bartramia longicauda	T	T	T	T	T	T	T
Actitis macularia	TW	TW	TW	TW	TW	TW	TW
Tringa solitaria	TW	TW	TW	TW	TW	TW	TW
T. melanoleuca	TW	TW	TW	TW	TW	TW	TW
T. flavipes	TW	TW	TW	TW	TW	TW	TW
Heteroscelus incanus							
Catoptrophorus semipalmatus	BTW	BTW	BTW	BTW	BTW	BTW	BTW
Aphriza virgata							
Calidris canutus			T		T	T	T
C. melanotos	T	T	T	T	T	T	T

	Bahamas	Cuba	Jamaica	Hispaniola	Puerto Rico	Lesser Antilles	Trinidad & Tobago
C. fuscicollis	T	T	T	T	T	T	T
C. bairdii							
C. minutilla	TW	TW	TW	TW	TW	TW	TW
C. pusilla							
C. mauri	TW	TW	TW	TW	TW	TW	TW
C. alba	TW	TW	TW	TW	TW	TW	TW
Limnodromus griseus	TW	TW	TW	TW	TW	TW	TW
L. scolopaceus							
Micropalama himantopus	T	T	T	T	T	T	T
Tryngites subruficollis	T	T	T	T	T	T	T
Limosa fedoa		T		T	T	T	T
L. haemastica		T		T		T	T
RECURVIROSTRIDAE							
Recurvirostra americana							
Himantopus mexicanus	B?	B?	B?	B?	B?	B?	B?
PHALAROPODIDAE							
Phalaropus fulicarius							
Steganopus tricolor							
Lobipes lobatus							
LARIDAE							
Larus glaucescens							
L. occidentalis							
L. argentatus	TW	TW	TW	TW	TW	TW	W
L. californicus							
L. delawarensis		W	W			W	W
L. atricilla	BTW	BTW	BTW	BTW	BTW	BTW	BTW
L. pipixcan							
L. philadelphia		W		W		W	
Xema sabini							

	Bahamas	Cuba	Jamaica	Hispaniola	Puerto Rico	Lesser Antilles	Trinidad & Tobago
Gelochelidon nilotica	BTW	BTW	BTW	BTW	BTW	BTW	BTW
Sterna forsteri	*	*					
S. hirundo	BT	T	T	T	T	BT	T
S. dougallii	BTW	TW	TW	BTW	BTW	BTW	BTW
S. fuscata	B	B	B	B	B	B	B
S. albifrons	BT	BT	BT	BT	BT	BT	BT
S. maxima	BTW	BTW	BTW	BTW	BTW	BTW	BTW
S. elegans							
S. sandvicensis	BTW	BTW	BTW	BTW	BTW	BTW	BTW
S. caspia	TW	TW	TW	TW	TW		
Chlidonias niger	T	T	T	T	T	T	T
RYNCHOPIDAE							
Rynchops niger	TW	TW		TW		TW	
COLUMBIDAE							
Columba leucocephala	BTW	BTW	BTW	BTW	BTW	BW	
C. fasciata							
C. flavirostris							
Zenaida asiatica	B	B	B	B	B	B	
Z. macroura	BW	BW	B	B	B		
CUCULIDAE							
Coccyzus minor	B?	B?	B?	B?	B?	B?	
C. americanus	?T	BT	?T	?T	?T	?T	?T
C. erythropthalmus	T	T	T	T	T	T	T
STRIGIDAE							
Micrathene whitneyi							
Athene cunicularia	B	*		B		B	
Asio flammeus		*		B	B		

	Bahamas	Cuba	Jamaica	Hispaniola	Puerto Rico	Lesser Antilles	Trinidad & Tobago
CAPRIMULGIDAE							
Caprimulgus carolinensis	BTW	TW	TW	TW	TW		
C. vociferus							
Phalaenoptilus nuttallii							
Chordeiles minor	BT	BT	BT	BT	BT	BT	T
C. acutipennis							
APODIDAE							
Cypseloides niger							
Chaetura pelagica	T		T				
C. vauxi							
Aeronautes saxatalis							
TROCHILIDAE							
Archilochus colubris							
A. alexandri							
Calypte costae							
C. anna							
Selasphorus platycercus							
S. rufus							
S. sasin							
Stellula calliope							
Eugenes fulgens							
Lampornis clemenciae							
Amazilia yucatanensis							
A. verticalis							
Cynanthus latirostris							
TROGONIDAE							
Trogon elegans							

	Bahamas	Cuba	Jamaica	Hispaniola	Puerto Rico	Lesser Antilles	Trinidad & Tobago
ALCEDINIDAE							
Megaceryle alcyon	TW	TW	TW	TW	TW	TW	TW
PICIDAE							
Sphyrapicus varius	TW	TW	TW	TW	TW		
S. thyroideus							
TYRANNIDAE							
Tyrannus tyrannus	T	T					
T. dominicensis	BT	BT	BT	BTW			
T. melancholicus						*	?
T. verticalis							
T. crassirostris							
T. vociferans							
Muscivora forficata							
Pitangus sulphuratus							B
Myiodynastes luteiventris							
Myiarchus crinitus	T	T					
M. tyrannulus							
M. cinerascens							
M. tuberculifer							B
Sayornis phoebe							
S. saya							
Empidonax flaviventris							
E. virescens	T	T					
E. traillii							
E. minimus							
E. hammondii							
E. oberholseri							
E. wrightii							

	Bahamas	Cuba	Jamaica	Hispaniola	Puerto Rico	Lesser Antilles	Trinidad & Tobago
E. difficilis							
E. fulvifrons							
Contopus pertinax							
C. sordidulus							
C. virens		T	T				
Nuttallornis borealis							W
Pyrocephalus rubinus							
Camptostoma imberbe							
HIRUNDINIDAE							
Tachycineta thalassina							
Iridoprocne bicolor	W	W	W	W	W		
Riparia riparia	T	T	T	T	T	T	T
Stelgidopteryx ruficollis		W	W				B
Hirundo rustica	T	T	T	T	T	T	T
Petrochelidon pyrrhonota	T	T	T	T	T	T	T
P. fulva		B	B	B	B		
Progne subis	BT	BT	BT	BT	BT	BT	BT
TROGLODYTIDAE							
Troglodytes aedon						B	B
Cistothorus palustris							
C. platensis							
MIMIDAE							
Dumtella carolinensis	TW	TW	TW	TW			
Oreoscoptes montanus							
TURDIDAE							
Turdus migratorius	W	W					
Hylocichla mustelina	T	T					
Catharus guttatus	T	T	T				

	Bahamas	Cuba	Jamaica	Hispaniola	Puerto Rico	Lesser Antilles	Trinidad & Tobago
C. ustulatus							
C. minimus	T	T		TW			T
C. fuscescens	T	T					
Sialia sialis		W					
S. mexicana							
S. currucoides							
Myadestes townsendi							
SYLVIIDAE							
Polioptila caerulea	W	W					
Regulus calendula							
MOTACILLIDAE							
Anthus spinoletta							
A. spragueii							
BOMBYCILLIDAE							
Bombycilla cedrorum	W	W	W	W	W	W	
LANIIDAE							
Lanius ludovicianus							
VIREONIDAE							
Vireo atricapilla							
V. griseus	BW	BW	B		B		
V. bellii							
V. vicinior							
V. flavifrons	W	W	W			*	W
V. solitarius	T	W	W				
V. altiloquus	BT	BT	BT	BTW	BTW	BTW	W

	Bahamas	Cuba	Jamaica	Hispaniola	Puerto Rico	Lesser Antilles	Trinidad & Tobago
V. olivaceus	T	T					BTW
V. philadelphicus							
V. gilvus							
PARULIDAE							
Mniotilta varia	TW	TW	TW	TW	TW	TW	TW
Protonotaria citrea	T	T	T	T	T	TW	TW
Limnothlypis swainsonii	T	W	W				
Helmitheros vermivorus	W	W	W	W	W	W	
Vermivora chrysoptera	T	T					
V. pinus	T	T					
V. bachmanii	T	TW					
V. peregrina	T	T					
V. celata							
V. ruficapilla							
V. virginiae							
V. crissalis							
V. luciae							
Parula americana	TW	TW	TW	TW	TW	TW	BTW
Peucedramus taeniatus							
Dendroica petechia	B	BT	B	B	B	BT	BTW
D. magnolia	TW	TW	TW	TW	TW	TW	
D. tigrina	W	W	W	W	W	W	*
D. caerulescens	TW	TW	TW	TW	TW	TW	
D. coronata	TW	TW	TW	TW	TW	TW	
D. nigrescens							
D. townsendi							
D. virens	TW	TW	TW	TW	TW	*	
D. chrysoparia							
D. occidentalis							
D. cerulea	T	T	T				

	Bahamas	Cuba	Jamaica	Hispaniola	Puerto Rico	Lesser Antilles	Trinida & Tobag
D. fusca	T	T					
D. dominica	B	TW	TW	TW	TW	*	
D. graciae							
D. pensylvanica	T	T	T	T			
D. castanea		T	T	T	T	T	
D. striata	T	T	T	T	T	T	T
D. pinus	BW			B			*
D. kirtlandii	W						
D. discolor	TW	BTW*	TW	TW	TW	TW	
D. palmarum	W	W	W	W	W	*	
Seiurus aurocapillus	TW	TW	TW	TW	TW	TW	TW
S. noveboracensis	TW	TW	TW	TW	TW	TW	TW
S. motacilla	TW	TW	TW	TW	TW	TW	
Oporornis formosus		T			T		
O. agilis	T				T		
O. philadelphia							
Geothlypis trichas	TW	TW	TW	TW	TW		
Icteria virens							
Cardellina rubrifrons							
Wilsonia citrina	T	T	T	T	T		
W. pusilla						*	
W. canadensis							
Setophaga ruticilla	TW	TW	TW	TW	TW	TW	TW
Myioborus pictus							
ICTERIDAE							
Dolichonyx oryzivorus	T	T	T	T	T	T	T
Sturnella magna		B					
S. neglecta							
Xanthocephalus xanthocephalus							
Agelaius phoeniceus	B	B					

D. discolor vitellina does not breed in Cuba but in Cayman and Swan Islands.

	Bahamas	Cuba	Jamaica	Hispaniola	Puerto Rico	Lesser Antilles	Trinidad & Tobago
Icterus spurius		T					
I. graduacauda							
I. cucullatus							
I. parisorum							
I. galbula	T	TW	TW				
Euphagus cyanocephalus							
Molothrus ater							
M. aeneus							
THRAUPIDAE							
Piranga ludoviciana							
P. olivacea	T	T	T	T	T	T	
P. flava							B
P. rubra	T	T	T	T		T	T
FRINGILLIDAE							
Pheucticus ludovicianus	T	TW	T	T		T	
P. melanocephalus							
Guiraca caerulea	TW	TW	TW				
Passerina cyanea	W	W	W	W	W		
P. amoena							
P. versicolor							
P. ciris	W	W					
Spiza americana	T	T	T				
Carduelis psaltria		B					
C. tristis							
Pipilo chlorurus							
P. erythrophthalmus							
Calamospiza melanocorys							
Passerculus sandwichensis	W	W					
Ammodramus savannarum	W	W	B	B	B		

	Bahamas	Cuba	Jamaica	Hispaniola	Puerto Rico	Lesser Antilles	Trinidad & Tobago
Pooecetes gramineus							
Chondestes grammacus	W	W					
Aimophila ruficeps							
A. botterii							
Spizella passerina							
S. breweri							
S. pallida							
S. atrogularis							
Zonotrichia leucophrys	W	W					
Melospiza lincolnii							
M. georgiana							

APPENDIX 6

Annotated Bibliography

Three thousand two hundred and seventy-three works are cited in this Bibliography. Each of these works pertains directly or indirectly to the biology of nearctic migrants in the neotropics or in transit.

The citations were accumulated in the following manner. Computer searches were made in six data bases from the present to ten years in the past (the limit of stored information for literature data bases on University of Georgia [UGA] Computers). Articles listed by the computer search were obtained from the UGA library or through inter-library loan. These articles were read and summarized, and their bibliographies were checked for pertinent articles. Articles discovered in this manner were obtained at the library or through inter-library loan. We canvassed the indices of major Wester Hemisphere bird journals as well as the literature review sections in journals which provide such a service. Every attempt was made to obtain all material relevant to the topic, regardless of where or in what language it was published.

In addition to these methods, we appealed by mail directly to researchers on migrants. This appeal was repeated to the ornithological community at large in the AOU Newsletter. We terminated the search as of December 1980, though a few citations have been added since that time.

The works are listed alphabetically according to the author's last name within each subject category. Each work appears only once in the Bibliography though its contents may pertain to more than one subject. The subject categories are given below in the Bibliography Table of Contents.

Annotations are provided for roughly one fourth of the works. In each annotation, the following information is provided:

1. Study Area - In what part of the world the study was done (county, state, direction and distance to the nearest city).

2. Study Period

3. Habitats - In which the study was performed, generally using the author's classification system.

4. Study Methods - These are abbreviated in the body of the Bibliography as follows:

   a. Observations - Obs.
   b. Literature Review - Lit.
   c. Banding - Recaptures - BR
   d. Vegetational Analyses - VA
   e. Experimentation - Exp.
   f. Habitat Analysis - HA
   g. Examination of Specimens - Spec.
   h. Laboratory Analysis - LA

5. Nearactic Migrant Species Considered - These are listed in taxonomic order by Latin Name where 20 or less are treated. If more than 20 are treated only the number of nearctic migrant species treated is given.

6. Subjects Considered - A brief summary of the subject of the article.

7. Number of Citations - The number of works cited by the author is given here as a guide to those interested in a work's usefulness as a literature source.

When any of the above information is either obvious from the title or is not provided by the author, a dashed line (-------) is used. Titles of articles printed in a foreign language have been translated to English. These titles are shown in brackets ([ ]).

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ATLANTIC OCEAN AND ISLANDS

Includes Bermuda

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Sapelo Island, Georgia; Media, Pennsylvania; Caldwell, New Jersey, USA; Bermuda: "spring" 1959, 1960: Allspice woods, fiddlewood stands, sage brush, scrub, pasture, marsh, mangrove: *Buteo jamaicensis*, *Dumetella carolinensis*, *Sialia sialis*, *Vireo griseus*, *Geothlypis trichas*, *Icteria virens*, *Passerina cyanea*, *Carduelis tristis*; population size of individual species appears to depend on the number of competing species: Population dynamics, ecology: 44.

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PACIFIC OCEAN

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Cost of Lower California: -------: -------: Obs.: *Selasphorus rufus*: Migration: 0.

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-------: Mar; Nov 1953: scrub; ash; beach: Spec.; Obs.; Lit.: 56 species recorded for the islands of which 32 are nearctic migrants: Distribution; life history notes on some species: 21.

82. Brosset, A. 1963. [The reproduction of seabirds from the Galapagos Islands in 1962]. Alauda 31:81-109.

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-------: -------: -------: Spec.; obs.; lit.: 117 species recorded including 61 nearctic migrants: Distribution; species richness; correlation between vegetation and number of breeding landbirds.

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-------: Nov 1973: -------: Spec.; obs.: *Limosa haemastica*, *Chlidonias niger*: Distribution: 1.

88. Howell, T. R. 1959. Land birds from Clipperton Island. Condor 61:155-156.

89. ___________ & T. J. Cade. 1954. The birds of Guadalupe Island in 1953. Condor 56:283-294.

90. ___________ & ___________. 1956. Additional data on the birds of Guadalupe Island. Condor 58:78.

91. Jehl, J. R. 1974. The near-shore avifauna of the Middle-American west coast. Auk 91:681-699.
-------: 29 Mar - 23 Apr 1973: Pelagic: Spec.: Obs.: 48 species observed including 14 waterbird and 9 landbird nearctic migrants: Distribution; abundance; food use; One of the few papers documenting apparent migration of nearctic landbird migrants in the eastern Pacific; species seen included *Falco sparverius*, *Zenaida macroura*, *Empidonax sp*., *Catharus sp*., *Dendroica petechia*, *D. coronata auduboni*, *D. caerulea*, *Pheucticus melanocephalus*: 29.

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-------: 1952-1963: -------: Obs.; Spec.: Lit.: 14 American "mainland" migrants and 23 Chardriiform migrants have been documented for the Galapagos area: *Himantopus mexicanus* and *Haematopus paliatus* breed on the islands: Distribution: 55.

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104. ____________ & ____________. 1902. Further notes on the fauna of the Galapagos Islands. Novit. Zool. 9:373-418.

105. Slud, P. 1967. The birds of Cocos Island (Costa Rica). Bull. Amer. Mus. Nat. Hist. 134:261-295.
-------: 21 Feb - 28 Apr 1963: Woodland; -------: Spec.; obs.; lit.: 77 species have been recorded for the island including 53 nearctic migrants; only 12 species are known to breed on the island: Distribution; habitat; natural history: 59.

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-------: 7-26 Aug 1958: Scrub; marsh; lagoon; coco palm stands: Spec.; obs.: 34 species recorded including - 24 nearctic migrants: Distribution: 24.

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Mexican Pacific Coast and offshore islands; Galapagos and intervening areas of the Pacific: 10 Mar - 1 Sep 1932: -------: Spec.; obs.: 21 nearctic migrants are mentioned; of these only *Hirundo rustica* and *Petrochelidon pyrrhonata* were seen at sea: 0.

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MIDDLE AMERICA

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Costa Rica; Almirante, Panama; Rio Chepo, Darien, Panama: 1926-1931: -------: Spec.: Notes on 13 species of nearctic migrants including southern records (Rio Chepo) for *Helmitheros vermivorus* and *Vermivora pinus*: Distribution: 2.

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-------: -------: -------: Spec.: *Dendroica palmarum*, *D. coronata*: There are no confirmed specimen records of *D. coronata* south of Honduras: Distribution: 4.

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126. ___________ & ___________. 1925. Further notes on Central American birds, with descriptions of new forms. Amer. Mus. Novit. 184: 1-16.

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132. ____________. 1919. Notes on a collection of birds from Panama, Costa Rica, and Nicaragua. Ark. Zool. 12:1-36.

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135. ____________. 1889. A list of the birds of the islands of the coast of Yucatan and of the Bay of Honduras. Ibis 31: 359-379.

136. ____________. 1890. A list of the birds of the islands of the coast of Yucatan and of the Bay of Honduras. Ibis 32: 84-95.

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Mexico to Guatemala: -------: -------: Spec.; obs.: 382 species recorded including notes on 97 "North American" species: Distribution; notes on habits, habitat, taxonomy: 7.

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Various localities - Costa Rica; Honduras; Guatemala; Panama: -------: -------: Obs.: Notes on 33 nearctic migrants: Ecology; behavior; timing of migration: 0.

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142. ___________. 1954. Life histories of Central American highland birds. Pacific Coast Avifauna, No. 31. 448 pp.

143. ___________. 1960. Life histories of Central American birds II. Pacific Coast Avifauna 34: 1-593.
-------: -------: -------: Obs.: Life histories of 59 species including *Tyrannus melancholichus*, *Myiarchus tuberculifer*, *Stelgidopteryx ruficollis*, *Troglodytes (aedon) musculus*, *Vireo (olivaceus) flavoviridis*: 218.

144. ___________. 1966. A breeding bird census and nesting success in Central America. Ibis 108: 1-16.

145. ___________. 1967. Life histories of Central American highland birds. Pub. Nuttall Ornith. Club 7.
-------: -------: -------: Obs.: Life histories of 39 tropical highland residents are given including *Empidonax (difficilis) flavescens*, *Parula (americana) pitiayumi*, *Carduelis psaltria*: 67.

146. ___________. 1969. Life histories of Central American birds. III. Pacific Coast Avifauna 35: 1-580.
-------: -------: -------: Obs.: Life histories of 53 species including *Platypsaris aglaiae*: 163.

147. ___________. 1972. Studies of tropical American birds. Publ. Nuttall Ornith. Club 10, 1-228.

148. ___________. 1977. A birdwatcher in tropical America. Austin, Univ. Texas Press.

149. Stuart, L. C. 1964. Fauna of Middle America. *In* handbook of Middle American Indians, vol. 1 (R. Wauchope & R. C. West, Eds.). Austin, Texas.
-------: -------: -------: Lit.: 1,424 species of birds for Mexico and Middle America including migrants: Overview of distrbution and zoogeography: 2.

150. van Rossem, A. J. 1934. Critical notes on Middle American birds Bull. Mus. Com. Zool. 77: 387-490.

151. ___________. 1938. Description of new birds from Mexico and Central America. Bull. British Ornit. Club 58:124-138.

152. ___________. 1938. Descriptions of twenty-one new races of Fringillidae and Icteridae from Mexico and Guatemala. Bull. British Ornith. Club 58: 124-138.

153. Van Tyne, J. 1930-31. The 1931 Expedition to British Honduras and Guatemala. Annual Report, Dir. Mus. Zool. Univ. Michigan (1932): 18-22.

154. Wetmore, A. 1958. Extralimital records for the Eastern Kingbird, Tree Swallow, and Blackpoll Warbler. Auk 75: 467-468.
Bermuda; Cocos Island (off Costa Rica); Swan Island (off Honduras); El Salvador; Panama: 1850-1858: -------: Spec.: *Tyrannus tyrannus*, *Iridoprocne bicolor*, *Dendroica striata*: Old distribution records: 3.

155. ___________. 1970. Descriptions of additional forms of birds from Panama and Colombia. Proc. Biol. Soc. Washington 82: 767-776.

BELIZE

156. Austin, O. L., Jr. 1929. Birds of the Cayo district, British Honduras. Bull. Mus. Comp. Zool. 69: 363-394.

157. Bangs, O. & M. E. Peck. 1908. On some rare and new birds from British Honduras. Proc. Biol. Soc. Washington 21: 43-46.

158. Barlow, J. C., J. A. Dick, D. H. Baldwin & R. A. Davis. 1969. New records of birds from British Honduras. Ibis, 111: 399-402.
Belize District, Belize: 13 Apr-13 May, 13 Jul-5 Aug 1966: -------: Spec.: *Dendrocygna autumnalis*, *Gallinula chloropus*, *Fulica americana*, *Charadrius semipalmatus*, *C. wilsonia*, *Calidris mauri*, *C. minutilla*: Distribution: 4.

159. ___________, ___________ & E. Pendergast. 1970. Additional records of birds from British Honduras (Belize). Condor 72: 371-372.
Rockstone Pond, Belize District, Belize: 20 Apr-20 May 1969: -------: Spec.: *Coccyzus erythropthalmus*: Distribution: 2.

160. ___________, ___________, D. Weyer & W. F. Young. 1972. New records of birds from British Honduras (Belize), including a Skua. Condor 74: 486-487.
Belize District; Stann Creek District: 1969-1971: -------; Obs.; spec.: *Dendrocygna autumnalis fulgens*, *Anas carolinensis*, *A. clypeata*, *Rynchops niger*, *Sterna hirundo*, *S. sandvicensis*: Distribution: 9.

161. Bond, J. 1954. Birds of Turneffe and northern two cays, British Honduras. Philadelphia Acad. Nat. Sci., Not. Nat. 260.
-------: 20-24 Jan 1954: -------: Spec., obs.; lit.: 51 species recorded; 15 nearctic migrants are resident; 23 are transient or winter resident; *Phalacrocorax auritus* and *Pandion haliaetus* are reported to breed on the islands: Distribution: 5.

162. Erickson, R. 1977. First record of the Knot *Calidris canutus*, and other records, from Belize (British Honduras). Bull. British Ornith. Club 97: 78-81.

163. Howell, T. R. 1965. Review of a "Distributional study of the birds of British Honduras," by S. M. Russell. Amer. Ornith. Union Ornith. Monographs No. 1, 1964. Wilson Bull. 77: 102-103.

164. Russell, S. M. 1964. A distributional study of the birds of British Honduras. Ornith. Monog. 1: 1-195.

165. Salvin, O. C. 1864. A fortnight amongst the sea-birds of British Honduras. Ibis 6: 372-387.

COSTA RICA

166. Arnold, K. L. 1966. Distributional notes on Costa Rican birds. Wilson Bull. 78: 316-317.
12 km S Canas, Guanacaste Prov.; Laguna de Arenal, Costa Rica: Sep 1964-Aug 1965: Marsh: Spec.; obs.: *Ixobrychus exilis*, *Agelaius phoeniceus*: Distribution: 2.

167. Bangs, O. 1906. Notes on birds from Costa Rica and Chiriqui, with descriptions of new forms and new records for Costa Rica. Proc. Biol. Soc. Washington, vol. 19: 101-112.

168. ___________. 1907. On a collection of birds from western Costa Rica. Auk 24: 287-312.

169. ___________. 1908. On certain Costa Rican birds. Proc. New England Zool. Club 4: 23-25.

170. ___________. 1909. Notes on some rare or not well-known Costa Rican birds. Proc. Biol. Soc. Washington 22: 29-38.

171. Boucard, A. 1878. On birds collected in Costa Rica. Proc. Zool. Soc. London 6: 37-71.
-------: 29 Dec 1876-30 May 1877: -------: Spec.; obs.: 25 of 230 species recorded are nearctic migrants; Boucard stated that 520 species had been found in the country up to that time; coffee plantations had reduced natural habitats in the vicinity of San Jose: Distribution, abundance: 2.

172. Buskirk, W. H. 1973. Four new migrants for Costa Rica. Condor 75: 363-364.
Monteverde, Puntarenas Prov.: Nosara, Guanacaste Prov., Costa Rica: 1968-1972: -------: Obs.: *Vireo solitarius*, *Dendroica occidentalis*, *D. townsendi*, *Dolichonyx oryzivorus*: Distribution: 6.

173. Cabinis, J. 1862. [Concerning a collection of birds from Costa Rica in the Berlin Musuem], VII. Forts. J. Ornith. 10: 321-336.

174. Carriker, M. A., Jr. 1910. An annotated list of the birds of Costa Rica, including Cocos Island. Ann. Carnegie Mus. 6(2-4): 314-915.

175. Cherrie, G. K. 1890. North American birds at San Jose, Costa Rica, with notes on their migration. Auk 7: 331-337.
-------: 1884-1890: -------: Spec.; obs.: 190 "North American" species had been reported for Costa Rica; 81 are treated in this paper; several of these species are resident or only partially migratory (e.g. *Caracara cheriway*): Distribution: 1.

176. ___________. 1891-1892. A preliminary list of the birds of San Jose, Costa Rica. Auk 8: 271-279; 9: 21-27, 247-251, 322-329.

177. ___________. 1892. Notes on Costa Rican birds. Proc. U. S. Natl. Mus. (1891) 14: 517-537.

178. ___________. 1895. North American birds notes from Costa Rica. Auk 12: 87.

-------: -------: -------: Spec.; obs.: *Calidris bairdi*, *Tachycineta thalassina*: Distribution: 0.

179. Delacour, J. 1943. A collection of birds from Costa Rica. Aviculture Mag., ser. 5, vol. 8: 29-32.

180. Dickerman, R. W. 1971. Further notes on Costa Rican birds. Condor 73: 252-253.

-------: 4 Feb-15 Mar 1967: -------: Spec.; obs.: 10 species treated including *Nyctanassa violacea violacea* (N. American ssp.), *Ixobrychus exilis* (specimens of both residents and N. American migrant populations apparently): Distribution; life history: 6.

181. Dwight, J. & L. Griscom. 1924. Descriptions of new birds from Costa Rica. Amer. Mus. Novit. 142: 1-5.

182. Ferry, J. F. 1910. Catalogue of a collection of birds from Costa Rica. Field Mus. Nat. Hist., Ornith. Ser. 1(6): 257-282.

183. Foster, M. S. & N. K. Johnson. 1974. Notes on birds of Costa Rica. Wilson Bull. 86: 58-63.

Villa Mills, Puntarenas Prov., Costa Rica: 25 Aug 1967: -------: Spec.: *Nutallornis borealis*: Distribution (with records on 17 resident species from other parts of the country): 10.

184. Frantz, A. von. 1849. [Concerning the geographic distribution of Costa Rican birds and their habits.] J. Ornith. 17: 195-204, 289-318, 361-379.

185. Howell, T. R. 1965. Review of "The birds of Costa Rica, distribution and ecology," by Paul Slud, 1964. Bull. Amer. Mus. Nat. Hist., 128. Auk 82: 289-292.

186. Kiff, L. F. 1975. Notes on southwestern Costa Rica birds. Condor 77: 101-103.

187. Lawrence, G. N. 1868-1870. A catalogue of the birds found in Costa Rica. Ann. Lyceum Nat. Hist., New York, 1868, 9: 86-149.

188. Nutting, C. C. 1882. On a collection of birds from the Hacienda "La Palma," Gulf of Nicoya, Costa Rica. Proc. U. S. Natl. Mus. 5: 382-409.

189. Orians, G. H. & D. R. Paulson. 1969. Notes on Costa Rican birds. Condor 71: 426-431.
-------: 29 Jun 1966-20 Aug 1967: -------: Obs.: 77 species recorded, 30 of which are nearctic migrants: Distribution: 11. (For further information see Dickerman, 1971).

190. Paulson, D. R. 1969. Notes on Costa Rican birds. Condor 71: 426-431.

191. Ridgway, R. 1905. A winter with the birds in Costa Rica. Condor 7: 151-160.

192. Salvin, O. C. 1869. Notes on Mr. Lawrence's list of Costa Rica birds. Ibis 1869: 310-319.

193. ____________. 1870. Additional notes on Mr. Lawrence's list of Costa Rica birds. Ibis 1870: 107-116.

194. Sassi, M. 1938. [Birds of the Osterreichischen Costa Rica Expedition: Part 1]. Temminckia 3: 279-322.

195. ____________. 1939. [Birds of the Osterreichischen Costa Rica Expedition: Part 2]. Temminckia 4: 135-222.

196. Skutch, A. F. 1966. Western Kingbird and Inca Dove in Costa Rica. Auk 83: 669.

197. ____________. 1971. A naturalist in Costa Rica. Gainesville, Univ. Florida Press.
San Isidro del General, Costa Rica: -------: 1935-1971: -------: Obs.: 277 species recorded, 51 considered nearctic migrants; a number of comments on the life history of nearctic migrants that occur as transients or winter residents in Costa Rica: 0.

198. Slud, P. 1960. The Birds of Finca "La Selva" Costa Rica: A tropical wet forest locality. Bull. Amer. Mus. Nat. Hist. 121: 49-148.

199.

200. ____________. 1964. The birds of Costa Rica. Bull. Amer. Mus. Nat. Hist. 128: 1-430.
-------: 1950-1962: -------: Spec.; obs.; lit.: 758 species recorded of which 192 are nearctic migrants: Distribution; habitat; habits; taxonomy; physiography: 171.

201. ____________. 1965. Report on the ornithological portion of the 1964-65 WNRE ecological investigation in Costa Rica. (Advanced Research Projects Agency Remote Area Conflict Order No. 578.) WNRE, Chestertown, Md.

202. ___________. 1980. The Birds of Hacienda Palo Verde, Guanacaste, Costa Rica. Smithsonian Contr. Zool. 292: 1-92.

-------: 13 Sep-16 Oct 1969; Apr 1970; 3-18 Mar 1971; 27 Aug-17 Sep 1975: Tropical dry forest; pasture; marshland: Obs.: 272 species recorded including 112 nearctic migrants: Distribution; life history notes: 69.

203. Smith, A. P. 1934. Costa Rica birds. Oologist 51: 99-100.

204. Stiles, F. G. & S. M. Smith. 1977. New information on Costa Rican waterbirds. Condor 79: 91-97.

Pacific Coast and adjacent lowlands, Costa Rica: 1972-1975: Lagoon; marsh; beach: Spec.; obs.: 37 species treated including 26 nearctic migrants: Distribution: 9.

205. Underwood, C. F. 1896. A list of birds collected or observed on the lower southern, and south-western slopes of the Volcano of Miravelles and on the lower lands extending to Bagaces in Costa Rica, with a few observations of their habits. Ibis 1896: 431-451.

206. Wetmore, A. 1944. A collection of birds from northern Guanacaste, Costa Rica. Proc. U. S. Natl. Mus. 95: 25-80.

207. Wolf, L. L. 1966. Notes on Costa Rican Birds. Condor 68:400-401.

208. ___________. 1976. Avifauna of the Cerro de la Muerte region, Costa Rica. Amer. Mus. Novit. 2606: 1-37.

------- (elev. 2900 m). Aug 1955; Aug-Sep, Dec 1966; Jul 1967: Montane forest, rain forest and seral stages: Spec.; obs.: 76 species recorded including 17 nearctic migrants: Distribution; some natural history: 48.

209. Zeledon, J. C. 1885. Catalogue of the birds of Costa Rica, indicating those species of which the United States National Museum possesses specimens from that country. Proc. U. S. Natl. Mus. 8: 104-118.

210. ___________. 1887. Catalogue of the birds of Costa Rica. An. Mus. Nac. Costa Rica 1: 103-133.

EL SALVADOR

211. Anonymous. 1904. Common birds of El Salvador. An. Mus. Nac. San Salvador, El Salvador 1: 342-344.

212. Dickey, D. R. & A. J. van Rossem. 1928. Further descriptions of new birds from El Salvador. Proc. Biol. Soc. Washington 41: 129-132.

213. ____________ & ____________. 1938. The birds of El Salvador. Field Mus. Nat. Hist., Zool. Ser. 23: 1-609.
-------: 22 Feb-20 Aug 1912; Jul 1925-Apr 1926; 14 Jan-11 Jul 1927: Mangrove; arid deciduous forest; savannah; gallery forest; pine forest; oak forest; cloud forest: Spec.; obs.: 446 forms recorded including 173 species of nearctic migrants: Distribution; taxonomy; habitat; status; life history: Several refs.

214. Feduccia, A. 1976. New bird records for El Salvador. Wilson Bull. 88: 150-151.
Laguna de Chanimica, Dept. Libertad; La Herradura, Dept. La Paz, El Salvador: Jun 1964: -------: Spec.: *Oxyura jamaicensis*, *Sterna albifrons*: Distribution: 0.

215. Felton, H. & J. Steinbacher. 1955. Contributions to the knowledge of the avifauna of El Salvador. Com. Inst. Trop. Invest. Cien. San Salvador, El Salvador 4: 1-36.

216. ____________ & ____________. 1955. On the avifauna of El Salvador. Forschungs Inst. Senckenberg, Frankfort 36: 9-20.

217. Marshall, J. T. 1943. Additional information concerning the birds of El Salvador. Condor 45: 21-33.
-------: 24 Dec 1941-13 May 1942: -------: Spec.; Obs.: 32 species treated including *Ardea herodias*, *Camerodius albus*, *Egretta thula*, *Caprimulgus vociferus* (resident race), *Chaetura vauxi*, *Hylocichla mustelina*, *Anthus spinoletta*, *Seiurus aurocapillus*, *Melospiza lincolnii*: Distribution: 1.

218. Miller, A. H. 1932. Observations on some breeding birds of El Salvador, Central America. Condor 34: 8-17.

219. Rand, A. L. & M. A. Traylor, Jr. 1954. Handbook of the birds of El Salvador. San Salvador, El Salvador. Editorial Universitaria.

220. ____________ & ____________. 1961. [Handbook of the birds of El Salvador. 2nd Ed. San Salvador, El Salvador, Editorial Universitaria.
-------: -------: -------: Spec.; obs.: 393 species recorded including 160 nearctic migrants: Distribution; habitat; status; keys; several references.

221. Steinbacher, J. 1956. Concerning a small bird collection from El Salvador. Forschungs Inst. Senckenberg, Frankfurt 37: 371-375.

222. ____________. 1958. An extensive contribution to the avifauna of El Salvador. Forschungs Inst. Senckenberg, Frankfurt 39: 11-40.

223. Thurber, W. A. 1978. One hundred birds from El Salvador. San Salvador, El Salvador. Ministerio de Educacion, Direccion de Publicaciones.
-------: -------: -------: Obs.; Lit.: 100 species treated including 29 nearctic migrants: Some life history; maps for 12 species: 17.

224. ___________. 1980. Hurricane Fifi and the 1974 Autumn Migration in El Salvador. Condor 82:212-218.

GUATEMALA

225. Baepler, D. H. 1960. Avifauna of the Soloma region, Huehuetenango, Guatemala, Ph.D Thesis, Norman, University of Oklahoma.

226. ___________. 1962. The avifauna of the Soloma region in Huehuetenango, Guatemala. Condor 64: 140-153.
-------: Soloma, Huehuetenango, Guatemala (elev. 2300 m): Mid Feb-mid Oct 1958: Cloud forest, oak forest, scrub oak thickets, oak-pine forest, pine forest, cultivated land: Spec.; obs.: 105 species were recorded, 40 nearctic migrants, 10 of which apparently bred in the area including: *Cathartes aura*, *Buteo jamaicensis*, *Caprimulgus vociferus*, *Colaptes cafer*, *Troglodytes (aedon) musculus*, *Sialia sialis*, *Vireo huttoni*, *Sturnella magna*, *Pipilo erythrophthalmus*: Indians in the area capture birds for food at night using fires on high (3000 m) mountain ridges during fall migration; species captured using this method were *Coccyzus erythopthalmus*, *Empidonax flaviventris*, *E. minimus*, *Oporornis formosus*, *Wilsonia canadensis*; none of these species was recorded during the day at Soloma: Distribution, abundance: 15.

227. Behrstock, R. A. 1977. Notes on some northern birds wintering on the Pacific Coast of Guatemala. Amer. Birds 31: 382.
Dept. of Escuintla, Guatemala: 30-31 Dec 1975: Salt ponds, mangroves: Obs.: *Rynchops niger*, *Stelgidopteryx ruficollis*, *Hirundo rustica*, *Protonaria citrea*: Distribution: 2.

228. Carriker, M. A., Jr. & R. Meyer de Schauensee. 1935. An annotated list of two collections of Guatemalan birds in the Academy of Natural Sciences of Philadelphia. Proc. Acad. Nat. Sci. Philadelphia 87: 411-455.
-------: 1915, 1935: -------: Spec. obs.: 272 species recorded; 68 nearctic migrants including both winter and permanent resident forms of *Polioptila caerulea* and *Dendroica coronata*: Distribution: 0.

229. Dearborn, N. 1907. Catalogue of a collection of birds from Guatemala. Field Mus. Nat. Hist. Publ. 125, Ornith. Ser. 1, 3: 69-138.

230. Dickerman, R. W. 1975. Nine new specimen records for Guatemala. Wilson Bull. 87: 412-413.
Rio de los Esclavos; Avellana, Santa Rosa Dept., Guatemala: Feb-Aug 1968; Jul-Aug 1970; 1972; Apr-May 1973; 1974: Marsh: Spec.; obs.: *Charadrius alexandrinus*, *Limosa haemastica*, *Sterna caspia*: Distribution: 4.

231. ___________. 1977. Three more new specimen records for Guatemala. Wilson Bull. 89: 612-613.
La Avellana, Santa Rosa Dept., Guatemala: Apr-May 1975; Apr 1976: Mud flats; Spec.; obs.: *Calidris bairdii*, *C. alpina*, *Sterna albifrons*: Distribution: 2.

232. Griscom, L. 1929. Studies from the Dwight collection of Guatemala birds. 1. Amer. Mus. Novit. 379: 1-13.

233. ___________. 1930. Studies from the Dwight Collection of Guatemala birds. II. Amer. Mus. Novit. 414: 1-8.

234. ___________. 1930. Studies from the Dwight Collection of Guatemala birds. III. Amer. Mus. Novit. 438: 1-18.

235. ___________. 1932. The distribution of bird-life in Guatemala. Bull. Amer. Mus. Nat. Hist. 64: 1-439.

236. ___________. 1935. The birds of the Sierra de las Minas, Eastern Guatemala. Ibis 77: 807-817.
-------: Jul 1897: -------: Spec.: *Progne* (*subis*) *chalybea*, *Mniotilta varia* (8 Jul), *Caprimulgus vociferus*, *Empidonax difficilis*, *E*. (*difficilis*) *flavescens*, *Dendroica graciae*, *Piranga flava*: 114 species listed: Distribution: 1.

237. Land, H. C. 1962. A collection of birds form the arid interior of eastern Guatemala. Auk 97: 1-11.

238. ___________. 1962. A collection of birds from the Sierra de las Minas Guatemala. Wilson Bull. 74: 267-283.
-------: 7 Jul 1958-3 Apr 1959: -------: Spec.; obs.: 160 species recorded including 45 nearctic migrants: Distribution; habitat: 6.

239. ___________. 1963. A collection of birds from the Caribbean lowland of Guatemala. Condor 65: 49-65.
-------: 22 Sep 1958-25 Mar 1959: -------: Spec.; obs.: 299 species recorded including 84 species of nearctic migrants: Distribution; habitat: 6.

240. ___________. 1970. Birds of Guatemala. Wynnewood, PA, Livingston Publ. Co.
-------: Jul 1958-Apr 1959; "summer" 1961; "summer" 1963; Jan 1968: -------: Obs., spec., lit: 667 species are considered, 239 of which are nearctic migrants: Distribution; habits; habitat: 64.

241. ___________ & L. L. Wolf. 1961. Additions to the Guatemalan bird list. Auk 78: 94-95.
5 miles SW Panzos, Alta Ver Paz, Guatemala: 17 Oct 1958: Spec.: *Protonotaria citrea*: Distribution: 2.

242. Proctor, N. 1972. Birding in the land of the Maya. Discovery 8: 21-30.
-------; Lake Atitlan, Guatemala (5,000'): -------: -------: *Nuttallornis borealis*, *Empidonax minimus*, *Contopus sordidulus*, *C*. *virens*, *Dendroica coronata*, *D*. *virens*, *D*. *townsendi*, *Setophaga ruticilla*: Distribution: 0.

243. Salvin, O. C. 1866. A further contribution to the ornithology of Guatemala. Ibis 8: 188-206.

244. __________ & P. L. Sclater. 1860. Contributions to the ornithology of Guatemala. Ibis 2: 28-45, 272-278, 396-402.

245. Saunders, G. B. 1951. The game birds and shore birds of Guatemala. U. S. Dept. Int. Fish Wild. Serv. Spec. Sci. Rep. 5: 3-98.

246. __________, A. D. Holloway & C. O. Handley, Jr. 1950. A fish and wildlife survey of Guatemala. Spec. Sci. Rept., Wildlife No. 5:3-93. Fish and Wildlife Serv., U. S. Dept. Int.

247. Smithe, F. B. 1966. The birds of Tikal. Garden City, NJ, Nat. Hist. Press.

248. __________ & R. A. Paynter, Jr. 1963. Birds of Tikal, Guatemala. Bull. Mus. Comp. Zool. 128: 245-324.

249. Tashian, R. E. 1953. The birds of southeastern Guatemala. Condor 55: 198-210.

-------: Nov 1950-Jan 1951: -------: Spec.; obs.: 150 forms recorded including 64 nearctic migrants: Distribution: 14.

250. Van Tyne, J. 1935. The birds of northern Peten, Guatemala. Univ. Michigan Mus. Zool. Misc. Publ. 27: 1-46.

-------: 26 Mar-15 May 1931: -------: B-R; spec.; obs.; lit: 223 forms recorded from a total avifauna then known for Guatemala of 757 forms; the list includes 48 species of nearctic migrants; Van Tyne notes that several *Passerina cyanea*, banded on their winter quarters in Guatamela returned to the same locality in subsequent years (p. 43): Distribution; taxonomy; some natural history: 26.

251. Wetmore, A. 1941. Notes on birds of the Guatemalan highlands. Proc. U. S. Natl. Mus. 89: 523-581.

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252. Bangs, O. 1903. Birds and mammals from Hondruas. Bull. Mus. Comp. Zool. 39: 141-159.

253. Bond, J. 1936. Resident birds of the Bay Islands of Spanish Honduras. Acad. Nat. Sci. Philadelphia 88: 353-364.

-------: Feb, Mar 1936: Broad-leaved and pine forest; coconut and banana plantations; pasture; mangrove swamp: Spec; obs.: 40 resident species are recorded, 13 of which also have nearctic migrant populations; 37 species of strictly migratory forms were omitted from the checklist: Taxonomy; Distribution: 2.

254. __________. 1937. New records for Spanish Honduras. Auk 54: 102.

255. Brown, H. C. & B. L. Monroe, Jr. 1974. Bird records from Honduras. Condor 76:348-349.

256. Deignan, H. G. 1936. Notes on a small collection of birds from the Republic of Hondruas. Auk 53: 186-193.

257. Eisenmann, E. 1970. Review: A distributional survey of the birds of Honduras, by B. L. Monroe, Jr. Wilson Bull. 82: 106-109.

258. Gosner, K. L. 1957. Birds of Honduras highlands. Nat. Mag. 50: 70-72.

259. Monroe, B. L., Jr. 1963. Three new subspecies of birds from Honduras. Occas. Pap. Louisiana St. Univ. Mus. Zool. 26: 6-7.
Rio Lindo, Dept. Cortes, Honduras: 29 Nov 1962: -------: Spec.: *Agelaius phoeniceus*: Breeds in marshes around Lake Yojoa, Dept. Cortes and along Rio Aguan, Dept. Yoro and southeastern Nicaragua: Distribution: 0.

260. ___________. 1968. A distributional survey of the birds of Honduras. Ornith. Mongr. 7: 1-458.
-------: 2 Aug 1962-13 May 1963: Lowland rain forest; tropical deciduous forest; cloud forest; arid mixed and thorn forest; highland pine forest; lowland pine savannah; marsh and swamp; mangrove: Spec.; obs.; lit: 663 species recorded including 217 nearctic migrants: Distribution; habitat; taxonomy: 543.

261. Peters, J. L. 1929. An ornithological survey in the Caribbean lowlands of Honduras. Bull. Mus. Comp. Zool. 69: 397-478.

262. Ridgway, R. 1887. Catalogue of a collection of birds made by Chas. H. Townsend, on islands in the Caribbean Sea and in Honduras. Proc. U. S. Natl. Mus. 10:572-597.

263. ___________. 1892. Notes on some birds from the interior of Honduras. Proc. U. S. Natl. Mus. 14: 467-471.

264. Sclater, P. L. 1858. List of birds collected by Geo. Cavendish Taylor, Esq., in the Republic of Honduras. Proc. Zool. Soc. London 356-360.

265. Sibley, F. C., G. F. Barrowclough & C. G. Sibley. 1980. Notes on the birds of Honduras. Wilson Bull. 92: 125-126.
Lake Yojou, Dept. Cortes; Tela, Dept. Atlantica: Choluteca, Dept. Choluteca, Honduras: 25 May-5 Jun 1973: -------: Spec. obs.: *Ardea herodias*, *Casmerodius albus*, *Haematopus paliatus*, *Numenius phaeopus*, *Tringa flavipes*, *Catoptrophorus semipalmatus*, *Limnodromus* sp., *Himantopus mexicanus*, *Sterna hirundo*, *Chlidonias niger*, *Rynchops niger*: Distribution; status: 1.

266. Stone, W. 1932. The birds of Honduras with special reference to a collection made in 1930 by John T. Emlen, Jr., and C. Brooke Worth. Proc. Acad. Nat. Sci. Philadelphia 84: 291-342.

267. Taylor, G. C. 1860. On birds collected or observed in the Republic of Honduras, with a short account of a journey across that country from the Pacific to the Atlantic Ocean. Ibis 2: 10-24, 110-122, 222-228, 311-317.

268. Townsend, C. H. 1887. Catalogue of a collection of birds made by Mr. Chas. H. Townsend, on islands in the Caribbean Sea and in Honduras. Proc. U. S. Natl. Mus. 10:572-597.

MEXICO

269. Alden, P. 1969. Finding the birds in Western Mexico. Tucson, Arizona, Univ. of Arizona Press.

Sonora, Sinaloa, and Nayarit, Mexico: 1964-1969: Desert, chaparral, savannah, grassland, dry forest, wet forest, coniferous forest, riparian forest, mangrove, beach. lagoon: Obs.: Provides distributional and habitat information on 250 North American migrants: 25.

270. Allen, J. A. 1893. List of mammals and birds collected in north-eastern Sonora and northwestern Chihuahua, Mexico, on the Lumholtz Archeological Expedition, 1890-1892. Bull. Amer. Mus. Nat. Hist. 5: 27-42.

271. Alvarez del Toro, M. 1952. [The wildlife of Chiapas Tuxtla Gutierrez, Chiapas, Mexico]. Inst. Cein. Artes Chiapas. Chapter titled "Aves": pp. 91-180.

272. ___________. 1952. New records of birds from Chiapas, Mexico. Condor 54: 112-114.

273. ___________. 1958. [List of bird species from Chiapas: endemics, migrants and transients]. Rev. Soc. Mexicana Hist. Nat. 19: 73-113.

274. ___________. 1964. [List of bird species from Chiapas: endemics, migrants and transients]. Rev. Inst. Cien., no. 12: 82pp.

275. ___________. 1971. [The birds of Chiapas]. Tuxtla Gutierrez. Gobierno el estado de Chiapas.

Chiapas, Mexico: 25 years up to Nov 1969: -------: Obs.; spec.; lit.: 614 species recorded for the state; 190 species are nearctic migrants; 46 of these nearctic migrants have breeding populations in Chiapas including *Elanoides forficatus*, *Buteo jamaicensis*, *Falco sparverius*, *Chordeiles minor*, *Caprimulgus vociferus*, *Chaetura vauxi*, *Stelgidopteryx ruficollis*, *Polioptila caerulea*, *Vireo huttoni*, *V. solitarius*, *V. gilvus* *Pipilo erythrophthalmus*, *Ammodramus savannarum*, *Spizella passerina*: Distribution, abundance, description, habitat: 31.

276. Amadon, D. & D. R. Eckelberry. 1955. Observations on Mexican birds. Condor 57: 65-80.

Tamaulipas; Veracruz; Oaxaca; Chiapas; and Mexico State: 15 Apr-5 Jun 1952: Coastal prairie, lowland rain forest, open forest, scrub pine-oak, cloud forest, pine forest: Notes on 51 species of nearctic migrants: Survey: 32.

277. ___________ & A. R. Phillips. 1947. Notes on Mexican birds. Auk 64: 576-581.

278. Andrle, R. F. 1966. North American migrants in the Sierra de Tuxtla of southern Veracruz, Mexico. Condor 68: 177-184.
-------: Mar, Apr 1960; Feb-Dec 1962: Rain forest, cloud forest, pine, oak, gum and semideciduous forest, cultivated land, seral stages, marsh, mangrove, swamp forest; Obs.: Relative abundance, habitat preference and period of occurrence are given for most of the 69 migrants mentioned: 12.

279. ___________. 1967. Birds of the Sierra de Tuxtla in Veracruz, Mexico. Wilson Bull. 79: 163-187.
-------: "Short periods in 1951, 1952, and 1960"; "11 months in 1962": Tropical rain forest; cloud forest; seral stages; pine-oak; lakes and marshes: Spec.; obs.: of 251 resident species, 26 are locally breeding populations of nearctic migrants including suspected breeding of *Coccyzus americanus*: Ecology, abundance, distribution: 23.

280. ___________. 1968. Raptors and other North American migrants in Mexico. Condor 70: 393-395.
San Fernando, Tamaulipas, Mexico; Tuxtla Mountains, Veracruz, Mexico: May 1951; May 1952; Mar, Apr, 1960; Oct, Nov, 1962: -------: Obs.: *Cathartes aura*, *Accipiter striatus*, *A. cooperii*, *Buteo platypterus*, *B. swainsoni*, *Circus cyaneus*, *Pandion haliaetus*, *Falco peregrinus*, *F. columbarius*, *F. sparverius*, *Gallinula chloropus*, *Calidris fuscicollis*, *Micropalama himantopus*, *Steganopus tricolor*, *Larus philadelphia*, *Gelochelidon nilotica*: Distributional notes; effects of wind and topography on raptor migration: 7.

281. Anonymous. 1894. (News Note) Nidiologist, 2 December, 1894, p. 55.
The W. E. Bryant collection of Lower California birds acquired by the California Academy of Sciences.

282. Arellano, M. & P. Rojas M. 1956. [Aquatic migratory birds in Mexico]. Inst. Mex. Recursos Naturales Renovables, Mexico, D. F.

283. Bailey, H. H. 1906. Ornithological notes from western Mexico and the Tres Marias and Isabella islands. Auk 23: 269-291.

284. Baird, S. F. 1859. Notes on a collection of birds made by Mr. John Xantus, at Cape St. Lucas, lower California, and now in the Museum of the Smithsonian Institution. Proc. Acad. Nat. Sci. Philadelphia 11: 299-306.

285. ___________. 1859. Report on the United States and Mexican Boundary Survey. Vol. 2, pt. II, Birds of the boundary: 1-32.

286. Bancroft, G. 1927. Notes on the breeding coastal and insular birds of central lower California. Condor 29: 188-195.

287. Bangs, O. & J. L. Peters. 1927. Birds from the rain forest of Vera Cruz. Bull. Mus. Comp. Zool. 67(15): 471-487.

288. ___________ & ___________. 1928. A collection of birds from Oaxaca. Bull. Mus. Comp. Zool. 68: 385-404.

289. Banks, R. C. 1962. A history of exploration for vertebrates on Cerralvo Island, Baja California. Proc. California Acad. Sci. 4th ser., 30: 117-125.

290. ___________. 1963. Birds of the Belvedere expedition to the Gulf of California. Trans. San Diego Soc. Nat. Hist. 13: 49-60.
Thirty-two islands in the Gulf of California: 15 Mar-21 Apr 1962: -------: Spec.; obs.: 67 species are recorded: 33 are nearctic migrants some of which breed in the Gulf of California region: Abundance, distribution, breeding information: 10.

291. ___________. 1963. New birds from Cerralvo Island, Baja California, Mexico. Occas. Papers, California Acad. Sci. 37: 1-5.

292. ___________. 1963. Birds of Cerralvo Island, Baja California. Condor 65: 300-312.
-------: 25 Oct-30 Oct 1960; 23 Oct-19 Nov 1961; 15 Apr 1962; 20 May-3 June 1962: Desert scrub; thorn forest: Obs.; spec.: Of 67 species recorded, 46% were resident; 36% were winter visitant or transient; 15% "wide ranging"; and 3% stragglers: Many of the resident species are nearctic migrants elsewhere in the species' range: 18.

293. ___________. 1967. Birds and mammals of La Laguna, Baja California. San Diego Society of Natural History 14: 205-232.
La Laguna, Cape region, Baja California, Mexico: 16 May-31 May, 1965: Pine-oak forest Sonaran desert: Obs.; spec.; Lit.: Abudance, breeding biology, habitat preference, and period of occurrence for 69 species, 42 of which are Nearctic migrants including 20 which have breeding populations at this latitude: 49.

294. ___________. 1969. Relationships of the Avi Fauna of San Esteban Island, Sonora. Condor 71: 88-93.
-------: -------: -------: Spec.: *Myiarchus cinerascens*, *Poloptila caerulea*: Comments on racial afinities, some mention of migrant and resident populations: 21.

295. ___________ & R. W. Dickerman. 1978. Mexican nesting records for the American Bittern. Western Birds 9: 130.

296. Beebe, C. W. 1905. Two bird lovers in Mexico. Boston, Houghton Mifflin Co.

297. Belding, L. 1883. Catalogue of a collection of birds made near the southern extremity of the peninsula of Lower California. Proc. U. S. Natl. Museum.

298. Beristan, S. & J. B. Laurencia. 1894. [Catalogue of the birds of Mexico]. Mem. Rev. Soc. Cien. "Antonio Alzate," 1893-94, 7(7-8):199-256, (9-10):257-284.

299. Berlioz, J. 1939. [Study of a collection of birds from Chiapas (Mexico)]. Bull. Mus. Hist. Nat. Paris, ser. 2, 11:369-377.

300. Binford, L. C. 1970. Finding birds in Mexico, a review. Auk 87:387-389.

301.

302. _____ ______. 1970. Audubon's Shearwater, Hudsonian Godwit and Long-tailed Jaeger in Oaxaca, Mexico. Condor 72: 366.

303. ___________. 1973. Virginia Rail and Cape May Warbler in Chiapas, Mexico. Condor 75: 350-351.
San Cristobal de las Casas, Chiapas, Mexico: 25 Apr, 2 May 1972: *Scirpus* marshes, residential yard: New record of a breeding population of *Rallus limicola* and for transient *Dendroica tigrina* from Chiapas: 3.

304. Blake, E. R. 1942. Notes on a collection of birds from Michoacan, Mexico. Field Mus. Nat. Hist. Zool. Ser. 22: 511-522.

305. ___________. 1950. Report on a collection of birds from Guerrero, Mexico. Fieldiana, Zool. 31: 375-393.

306. ___________. 1950. Report on a collection of birds from Oaxaca, Mexico. Fieldiana, Zool. 31: 395-419.

307. ___________. 1953. Birds of Mexico. Chicago, Univ. of Chicago Press.
-------: -------: -------: Spec.; obs.; Lit.: 967 species treated including 313 species of nearctic migrants: Distribution, seasonal status: 0.

308. ___________ & H. C. Hanson. 1942. Notes on a collection of birds from Michoacan, Mexico. Field Mus. Nat. Hist. Zool. Ser. 22: 513-551.

309. Bond, J. 1961. Notes on Birds of Cozumel Island, Quintana Roo, Mexico. Carib. J. Sci. 1: 41-47.
-------: 11 Feb-25 Feb 1961: -------: Spec.; obs.; Lit.: 30 species of nearctic migrants are recorded some of which breed on the island; Bond, contrary to Paynter (1955), considers *Melanoptila glabrirostris* generically distinct from *Dumetella carolinensis*, a species that winters commonly on Cozumel; other taxonomic questions are discussed; notes on distribution; some life history on selected species: 7.

310. Boswall, J. 1978. The birds of the San Benito Island, Lower California, Mexico. Bristol Ornith. 11: 23-30.

311. Brewster, W. 1902. Birds of the Cape region of Lower California. Bull. Mus. Comp. Zool. 41: 1-241.

312. Brodkorb, P. 1938. New birds from the District of Soconusco, Chiapas. Occas. Pap. Mus. Zool., Univ. Michigan 369: 1-7.

313. ___________. 1939. New subspecies of birds from the District of Soconusco, Chiapas. Occas. Pap. Mus. Zool., Univ. Michigan 401: 1-7.

314. ___________. 1940. New birds from southern Mexico. Auk 57: 542-549.
Rio Usumacinta, Chiapas, Mexico: Apr-May 1939: -------: Spec.: *Sterna albifrons*, *Dendroica graciae*: Resident forms of these species are described: 6.

315. ___________. 1943. Birds from the gulf lowlands of southern Mexico. Univ. Michigan Mus. Zool., Misc. Publ. 55.

316. ___________. 1948. Some birds from the lowlands of central Veracruz, Mexico. Quart. J. Florida Acad. Sci. 10: 31-38.
Various localities in central Veracruz: 6-16 Mar, 8-10 May 1941: -------: Spec.; obs.: 16 of 67 "forms" are nearctic migrants including migrant and resident forms of *Pyrocephalus rubinus*, both collected near Tejeria: Distribution: 4.

317. Bryant, W. E. 1889. A catalogue of the birds of Lower California, Mexico. Proc. California Acad. Sci., ser. 2, 2: 20-24.

318. ___________. 1891. The Cape region of Baja California. Zoe 2: 181-201.

319. Burleigh, T. D., & G. H. Lowery, Jr. 1942. Notes on the birds of southeastern Coahuila. Occas. Papers Mus. Zool., Louisiana St. Univ. 12: 185-212.

320. Buskirk, W. H. 1968. The arrival of trans-Gulf migrants on the northern coast of Yucatan in fall. M. S. Thesis. Baton Rouge, LA, Louisiana St.

321. Chapman, F. M. 1896. Notes on birds observed in Yucatan. Bull. Amer. Mus. Nat. Hist. 8: 271-290.

322. ___________. 1898. Notes on birds observed at Jalapa and Las Vigas, Veracruz, Mexico. Bull. Amer. Mus. Nat. Hist. 10: 15-43.
-------: 28 Mar-27 Apr 1897: Tropical forest; various seral stages; cropland (corn & coffee); pine: Spec.; obs.: 22 of 107 species recorded were migrants at Xalapa whereas 17 of 48 were migrants at Las Vigas: Abundance; distribution; breeding status: 6.

323. ___________. 1914. A naturalist's journey around Vera Cruz and Tampico. Natl. Geogr. Mag. 25(5): 532-562.

324. Coffey, B. B., Jr. 1960. Late north American spring migrants in Mexico. Auk 77: 288-297.
States of Chiapas; Guerrero; Mexico, D. F.; Morelos; Oaxaca; Puebla; Tamaulipas; Veracruz: Various dates 1947-1958 from Nov-Jun: Obs.: 45 nearctic migrants are treated: Distribution: 11.

325. Contreras-Balderas, A. 1973. Three new bird entries for the state of Nuevo-Leon, Mexico. Publ. Biol. Inst. Invest. Cein. Univ. Auton, Nuevo Leon 1: 1-8.

326. Cossio G., M. L. 1976. Aquatic migratory birds in Mexico. N. Amer. Wildlife Conf. Trans. 41: 212-214.
-------: -------: -------: Lit.: Game birds: Conservation efforts in Mexico: 0.

327. Davis, J. 1953. Birds of the Tzitzio Region, Michoacan, Mexico. Condor 55: 90-98.
-------: 4 Aug-10 Aug 1939; 13 Jul-30 Jul 1951: Pine-oak, various seral stages; cropland: Spec.; obs.: 83 resident breeding species including *Cathartes aura*, *Buteo jamaicensis*, *Chordeiles minor*, *Caprimulgus vociferus*, *Empidonax difficilis*, *Contopus richardsonii*, *Peterochelidon pyrrhonota*, *Turdus migratorius*, *Sialia sialis*, *Polioptila caerulea*, *Vireo solitarius*, *V. gilvus*, *Dendroica graciae*, *Molothrus ater*, *Piranga flava*, *Spizella passerina*: Distribution: 8.

328. ____________. 1959. The Sierra Madrean element of the avifauna of the Cape District, Baja California. Condor 61: 75-84.
-------: -------: -------: Spec.; obs.: *Contopus sordidulus*, *Turdus migratorius*, *Vireo gulvus*, *V. solitarius*, *Dendroica petechia* as members of the resident population: Distribution; biogeography: 23.

329. ____________. 1960. Notes on the birds of Colima, Mexico. Condor 62: 215-219.

330. Davis, L. I., compiler. 1951. 51st Christmas Bird Count (Xilitla, S.L.P., Mexico). Aud. Field Notes 5: 183-185.

331. ____________. 1952. Tropical woods. Aud. Field Notes 6: 314-315.
Catemaco, Veracruz, Mexico: 15-17 Apr; 11-17 Jun, 21-26 June 1952: Coffee Finca: 18 of 114 species recorded were migrants including *Myiarchus crinitus*, *Empidonax traillii*, *Chaetura pelagica*, *Stelgidopteryx ruficollis*, *Hirundo rustica*, *Catharus ustulatus*, *Mniotilta varia*, *Dendroica magnolia*, *D. virens*, *Seiurus aurocapillus*, *Icteria virens*, *Wilsonia citrina*, *W. pusilla*, *Setophaga ruticilla*, *Icterus galbula*, *I. spurius*, *Piranga rubra*, *Pheucticus lucovicianus*: Distribution: 0.

332. ____________. 1952. Coastal prairie. Aud. Field Notes 6: 324.
25.8 km S of Boca del Rio, Veracruz, Mexico (elev. 30m): 10-15 Apr, 6-10, 28, 29 Jun 1952: Overgrazed grassland, wooded thickets: Obs.: 52 species recorded, 24 nearctic migrants including presumed breeding populations of *Chordeiles minor*, *Camptostoma imberbe*, *Pyrocephalus rubinus*, *Agelaius phoeniceus*, *Vireo* (*olivaceus*) *flavoviridis*, *Sturnella magna*: Distribution: 0.

333. ____________. 1966. Birds of the Rio Grande Delta Region. 1966 revision, 54 pages. Published by the author.

334. ____________ & M. Johnston. 1947. Eleventh breeding bird census (oak-sweetgum community in San Luis Potosi). Aud. Field Notes 1: 202-203.

335. ____________ & J. J. Morony, Jr. 1953. Lowland tropical forest. Aud. Field Notes 7: 352-353.

336. ____________ & ____________. 1953. Tropical prairie. Aud. Field Notes 7: 359-360.

337. Davis, W. B. 1944. Notes on summer birds of Guerrero. Condor 46: 9-14.

338. ____________. 1945. Notes on Veracruzan birds. Auk 62: 272-286.
Cofre de Perote (10,500'), Guadalupe Victoria (8,000') Las Vigas (8,000'), Xalapa (4,500'), Puento Nacconal (500'), Plan del Rio (1,000'), Boco del Rio (sea level): Jul-Aug 1942: Pine; pastures; evergreen, broad-leaf forest; thorn forest; marsh; ponds: *Butorides striatus*, *Buteo jamaicensis*, *Falco sparverius*, *Sayornis saya*, *Stelgidopteryx ruficollis*, *Turdus migratorius*, *Sialia sialis*, *Icterus spurius*, *Piranga flava*, *Passerina versicolor*, *Carduelis psaltria*, *Pipilo fuscus* occurred as summer birds (breeding?): Distribution: 1.

339. Dickerman, R. W. & D. W. Warner. 1961. Distribution records from Tecolutla, Veracruz, with the first record of *Porzana flaviventer* for Mexico. Wilson Bull. 73: 336-340.
-------: 26, 27 Apr; 1, 2 Jun, 1958: Marsh: Obs., spec.: *Pelecanus erythrorhynchus*, *Botaurus lentiginosus*, *Rallus limicola*, *Porzana carolina*, *Laterallus jamaicensis*, *Pluvialis dominica*, *Micropalama himantopus*, *Larus atricilla*, *Sterna sandivicens*, *S. caspicus*, *Zenaida macroura*, *Iridoprocne bicolor*, *Riparia riparia*, *Stelgidopteryx ruficollis*, *Hirundo rustica*, *Petrochelidon pyrrhonota*, *Cistothorus palustris*, *Geothlypis trichas*, *Melospiza georgiana*: Distribution, timing of migration: 8.

340. Edwards, E. P. 1968. Finding birds in Mexico. Sweet Briar, VA, E. P. Edwards.
-------: -------: -------: -------: 310 species of nearctic migrants (970 total) are discussed in terms of habitat and distribution: 12.

341. ____________. 1972. A field guide to the Birds of Mexico. Sweet Briar, VA. E. P. Edwards.

342. ____________ & R. B. Lea. 1955. Birds of the Monserrate Area, Chiapas, Mexico. Condor 57: 31-54.
------- (elev. 2000-5000'): 24 Mar-7 Apr 1947; 12 Jul-17 Aug 1950; 1-10 Aug 1952: Tropical hardwood forest; semi-arid scrub; cloud forest; pine forest; pine-oak forest: Spec.; obs.: 184 species recorded including 68 nearctic migrants: Distribution; habitat; taxonomy: 13.

343. ____________ & R. E. Tashian. 1959. Avifauna of the Catemaco basin of southern Veracruz, Mexico. Condor 61: 325-337.
Coyame, Veracruz, Mexico (1400'-2000'): 28 Jun-22 Jul 1954: Rain forest, edge, lake shore: *Podilymbus podiceps*, *Pelecanus occidentalis*, *Butorides striatus*, *Egretta thula*, *Cathartes aura*, *Larus atricilla*, *Chaetura vauxi*, *Vireo (olivaceus) flavoviridis*: Distribution, some ecology: 9.

344. Ely, C. A. 1961. The avifuana of southeastern Coahuila, Mexico. Ph.D. Thesis, Norman Univ. Oklahoma.

345. ____________. 1962. The birds of southeastern Coahuila, Mexico. Condor 64: 34.
Saltillo, Coahuila, Mexico: 24 Dec 1957-1 Jan 1958; 13 Jun-10 Aug, 19 Sep-19 Nov 1958; 16 Apr-13 Jun 1959: Desert scrub (6500 ft. or less); montane low forest (6500-8500 ft.); conifers (8500-12,500 ft.); chaparral (7500-12,500 ft.): Spec.; obs.: 93 species of nearctic migrants are recorded, many as summer or permanent residents: 9.

346. Ferrari-Perez, F. 1886. Catalogue of animals collected by the Geographical and Exploring Commission of the Republic of Mexico, with descriptions of five new species, and critical remarks on others of great or less rarity or interest by Robert Ridgway. Proc. U. S. Natl. Mus. 9: 125-199.

347. Fisher, H. T. & M. H. Fisher. 1970. Life in Mexico: The letters of Fanny Calderon de la Barca. Garden City, New York, Doubleday.
-------: 1839-1842: -------: Obs.: "herons", "white egrets", "spoonbills", "pelicans", "ducks", "swallows", "gulls", "cranes", and many other birds are mentioned by date and locality: Historical distribution; abundance: 0.

348. Friedmann, H., L. Griscom & R. T. Moore. 1950. Distributional check-list of the birds of Mexico. Part I. Pacific Coast Avif., 29: 1-202.

349. Goldman, E. A. 1951. Biological investigations in Mexico. Smithsonian Inst. Misc. Coll. 115.

350. Graber, J. W. & R. R. Graber. 1959. Winter observations of birds in Oaxaca, Mexico. Southwestern Nat. 14: 66-82.

351. Grant, P. R. 1965. A systematic study of the terrestrial birds of the Tres Marias Islands, Mexico. Yale Peabody Mus. Nat. Hist. Postilla 90: 1-106.

352. ___________. 1966. Late breeding on the Tres Marias Islands. Condor 68: 249-252.

353. ___________ & I. McT. Cowan. 1964. A review of the avifauna of the Tres Marias Islands, Nayarit, Mexico. Condor 66: 221-228.
-------: 1957-1963: -------: Spec.; obs.: 60 of 118 species recorded are transients or winter residents, most of which are nearctic migrants from Western USA; Nyctanassa violacea, Cathartes aura, Buteo jamaicensis, Pandion haliaetus, Haematopus palliatus, Zenaida asiatica, Chordeiles acutipennis, Camptostoma imberbe, Vireo (olivaceus) flavoviridis, Parula (americana) pitiayumi breed on one or more of the islands: Distribution, breeding: 17.

354. Grayson, A. J. 1871. On the physical geography and the natural history of the islands of the Tres Marias and of Socorro, off the western coast of Mexico. Proc. Boston Nat. Hist. Soc. 14: 261-302.

355. Grinnell, J. 1928. A distributional summation of the ornithology of the Lower California. Univ. California Publ. Zool. 32: 1-300.
Baja California, Mexico and adjacent islands: -------: -------: Spec.; obs.; lit.: 334 species discussed; 57 species of nearctic migrants are resident in the Cape District (South of 23.5° N) of Baja California; 131 species of North American migrants occur as transients or winter residents; tropical breeding populations of nearctic migrants include Catharus guttatus, Vireo solitarius, Lanius ludovicianus, Pipilo erythrophthalmus, Phalacrocorax auritus, Falco mexicanus, Microthene whitneyi, Myiarchus cinerascens, Contopus sordidulus, Passerina versicolor, Tachycineta thalassina: Distribution, taxonomy, exhaustive literature review: 461.

356. Griscom, L. 1926. The ornithological results of the Mason-Spinden expediton to Yucatan. Amer. Mus. Novit. No. 236: 1-19.

357. ___________. 1934. The ornithology of Guerrero, Mexico. Bull. Amer. Mus. Comp. Zool. 75: 367-422.

358. ___________. 1937. A collection of birds from Omilteme, Guerrero. Auk 54: 192-199.

359. Harper, C. C. & J. D. Webster. 1968. Cactus Acacia Grassland. Aud. Field Notes 22: 685.

360. Heilforth, F. 1930. Two North American migrants on Las Tres Marias. Auk 47: 423.

361. Herrera, A. L. 1898. [Mexican ornithology]. La Naturaleza, ser. 2, 3: 131-229.

362. Hubbard, J. P. 1967. Notes on some Chiapas birds. Wilson Bull. 79: 236.

Cerro Mozotal (10,000'); Pijijiapan, Chiapas, Mexico: 30 Mar; 15-17 Apr 1965: Pine oak forest; savannah: Obs.: *Peucedramus taeniatus*, *Muscivora forficata*: Distribution; migratory movement: 2.

363. ___________ & R. S. Crossin. 1974. Notes on northern Mexican birds. An expedition report. Nemouria 14, 41pp.

364. Hunn, E. 1973. Noteworthy bird observations from Chiapas, Mexico. Condor 75: 483.

Puerto Arista, San Cristobal and Jitotol, Chiapas, Mexico: Apr-Dec 1971: -------: Obs.: *Charadrius wilsonia*, *Calidris mauri*, *Protonotaria citrea*, *Dendroica caerulescens*, *D. chrysoparia*. Distribution: 4.

365. Hutto, R. L. 1980. Winter habitat distribution of migratory land birds in western Mexico, with special reference to small, foliage-gleaning insectivores. Pp. 181-203 *in* Migrant birds in the Neotropics: ecology, behavior, distribution, and conservation. (A. Keast & E. S. Morton, Eds.). Washington, D. C., Smithsonian Inst. Press.

-------: Jan. - Mar. 1975, 1976; Jun - Jul, 1976: 13 habitat types visited: Obs.; Sampling of insect densities and foliage densities within each site: 62 migrants treated: Habitat use: 45.

366. Jehl, J. R., Jr. 1977. An annotated list of Islas Los Coronados, Baja California, and adjacent waters. Western Birds 8: 91-101.

367. Jouy, P. L. 1894. Notes on birds of central Mexico, with descriptions of forms believed to be new. Proc. U. S. Natl. Mus. 16: 771-791.

368. Kaeding, H. B. 1905. Birds from the west coast of Lower California and adjacent islands. Condor 7: 105-111.

369. Klaus, E. E. 1968. Summer birds from the Yucatán Peninsula, México. Univ. Kansas Publ. 17: 579-611.

370. Kuroda, N. 1930. A collection of birds made by Mr. H. Yoshida in Mexico. Tori 6: November.

371. Lamb, C. C. 1927. Notes on some birds of the southern extremity of Lower California. Condor 29: 155-157.
Cape Region, Baja California, Mexico: 1923-1924: -------: Spec.; obs.: 225 species were seen of which 40 are reported on in this paper; 27 of those reported are nearctic migrants; Distribution: 1.

372. Lawrence, G. N. 1874. The birds of western and northwestern Mexico, based upon collections made by Col. A. J. Grayson, Capt. J. Xantus and Ferd. Bischoff, now in the museum of the Smithsonian Institution at Washington, D.C. Mem. Boston Soc. Nat. Hist. 2: 265-319.

373. Lea, R. B. & E. P. Edwards. 1950. Notes on birds of the Lake Patzcuaro region, Michoacan, Mexico. Condor 52: 260-271.
-------: 14-19 Mar, 25 Apr-9 May 1947: -------: Spec.; obs.: 150 species recorded; 78 nearctic migrants including some with local breeding populations: Distribution: 15.

374. Leopold, A. S. 1959. Wildlife in Mexico. Berkely, Univ. California Press.
-------: 1944-1952: -------: Spec.; obs.: 32 species of nearctic migrants are treated, mostly Anatidae: Use of wildlife resources; Mexican Govt. regulations and programs: 203.

375. Lewis, T. H. 1971. Field notes on the dry season birds of Nayarit. Texas J. Sci. 23: 57-66.
-------: 14-21 Mar 1954: -------: Obs.: 82 species recorded, 37 nearctic migrants: Distribution: 3.

376. ___________. 1972. Notes on the dry season birds of Sinaloa. Texas J. Sci. 24: 233-243.
-------: 11-24 Mar 1954: -------: Obs.; spec.: 106 species recorded of which 48 were nearctic migrants: Distribution: 0.

377. Lindsay, G. E. 1962. The Belvedere expedition to the Gulf of California. Trans. San Diego Soc. Nat. Hist. 13: 1-44.

378. ___________. 1966. The Gulf islands expedition of 1966. Proc. California Acad. Sci., ser. 4, 30: 309-355.

379. Loetscher, F. W., Jr. 1941. Ornithology of the Mexican state of Veracruz with an annotated list of the birds. Ph.D. Thesis, Ithaca, NY, Cornell Univ.

380. ___________. 1955. North American migrants in the state of Veracruz, Mexico: A Summary. Auk 72: 14-54.
-------: 27 Jul-1 Sep 1937; 27 Feb-27 Jun 1939; 26 Jun-9 Aug 1952: -------: Spec.; obs.; Lir.: Over 700 forms of birds had been recorded for Veracruz by 1955; of these 243 forms (211 species) are nearctic migrants; Loetscher lists 8 nearctic migrants that have breeding populations in Veracruz - *Podylymbus podiceps*, *Butorides (striatus) virescens*, *Fulica americana*, *Himantopus mexicanus*, *Athene cunicularia*, *Passerina versicolor*: Distribution, habitat, abundance: 80.

381. Lowery, G. H., Jr. & W. W. Dalquest. 1951. Birds from the state of Veracruz, Mexico. Univ. Kansas Publ. Mus. Nat. Hist. 3: 531-649.

382. ____________ & R. J. Newman. 1949. New birds from the state of San Luis Potosi and the Tuxtla Mountains of Veracruz, Mexico. Occas. Pap. Mus. Zool., Louisiana St. Univ. 22: 1-10.

383. ____________ & ____________. 1951. Notes on the ornithology of southeastern San Luis Potosi. Wilson Bull. 63: 315-322.
Xilitla, San Luis Potosi, Mexico: 1941-1950: -------: Spec.; obs.: 490 species had been recorded for San Luis Potosi by 1950; 32 species are reported on in this paper including - *Empidonax flavirentris*, *E. hammondi*, *Hylocichla mustelina*, *Vermivora chrysoptera*, *V. pinus*, *Dendroica fusca*, *Wilsonia canadensis*: Distribution: 10.

384. Mailliard, J. 1923. Expedition of the California Academy of Sciences to the Gulf of California in 1921. Proc. California Acad. Sci., 4th ser., 12: 443-456.

385. Marsh, E. G., Jr. & J. O. Stevenson. 1938. Bird records from northern Coahuila. Auk 55: 286-287.

386. Mees, G. F. 1970. On some birds from southern Mexico. Zool. Meded Rijks Van Natuurlijke Hist. Leiden 44: 237-245.
Oaxaca; Veracruz, Mexico: 1962-1964: -------: Spec.: *Podiceps nigricollis*, *Podilymbus podiceps*, *Casmerodius albus*, *Caldris alba*, *Coccyzus americanus*, *Myiarchus crinitus*, *M. cinerascens*, *Nuttallornis borealis*, *Troglodytes aedon*, *Vermivora celata*: Distribution: 21.

387. Miller, A. H. 1955. The avifauna of the Sierra del Carmen of Coahuila, Mexico. Condor 57: 154-178.

388. ____________, H. Friedmann, L. Griscom & R. T. Moore. 1957. Distributional check-list of the birds of Mexico. Part 2. Pacific Coast Avifauna 33.

389. Miller, W. D. 1905. List of birds collected in southern Sinaloa, Mexico, by J. H. Batty, during 1903-1904. Bull Amer. Mus. Nat. Hist. 21: 339-369.

390. ____________. 1906. List of birds collected in northwestern Durango, Mexico by J. H. Batty during 1903. Bull. Amer. Mus. Nat. Hist. 22: 161-183.

391. Moore, R. T. 1938. Unusual birds and extensions of ranges in Sonora, Sinaloa, and Chihuahua. Condor 40: 23-28.

392. ____________. 1941. New races of flycatcher, warbler and wren from Mexico. Proc. Bio. Soc. Washington 54: 35-42.
Uruapan, Michoacan, Mexico (5,200' elev.): 2 Jul 1939: ------: Spec.; Resident race of *Cistothorus platensis*: Distribution: 4.

393. Nelson, E. W. 1898. Descriptions of new birds from the Tres Marias Islands, western Mexico. Proc. Biol. Soc. Washington 12: 5-11.

394. __________. 1898. Notes on certain species of Mexican birds. Auk 15: 155-161.

395. __________. 1899. Birds of the Tres Marias Islands. N. Amer. Fauna 14: 15-71.

396. __________. 1899. Descriptions of new birds from Mexico. Auk 14: 25-31.

397. __________. 1904. A winter expedition in southwestern Mexico. Natl. Geogr. Mag. 15: 341-356.

398. __________. 1904. Descriptions of four new birds from Mexico. Proc. Biol. Soc. Washington 17: 151-152.

399. __________. 1921. Lower California and its natural resources. Mem. Nat. Acad. Sci. 16: 1-194.

400. Newman, R. J., compiler. 1947. 47th Christmas Bird Count (Villa Tamuin, S.L.P., Mexico). Aud. Field Notes 1: 24.

401. Nocedal, J. [Avifauna of the Lacaná-Chansayab, Lacandona forest (Chiapas)]. Publ. Inst. Ecol. 6 (P. Reyes-Castillo, Ed.). Mexico. (In Press).

402. Parker, T. A., III, S. L. Hilty & M. Robbins. 1976. Birds of El Triunfo cloud forest, Mexico, with notes on the Horned Guan and other species. Amer. Birds 30:779-782.

403. Parkes, K. C. 1970. On the validity of some supposed "first state records" from Yucatan. Wilson Bull. 82: 92-95.
-------: -------: -------: Lit.; spec.; obs.: *Accipiter striatus*, *Tyrannus verticalis*, *Tachycineta thalassina*, *Vermivora celata*, *V. ruficapilla*, *Seiurus noveboracensis*, *Wilsonia pusilla*, *Icterus galbula*, *Piranga ludoviciana*, *Pheucticus melanocephalus*: Records for Yucatan of these and other species in Thompson (Wilson Bull. 74: 173-176, 1962) are considered questionable for the most part: 9.

404. Paynter, R. A., Jr. 1952. Birds from Popocatepetl and Ixtaccihuatl, Mexico. Auk 69: 293-301.
-------: 31 Oct-5 Nov 1950: Pine forest: Spec.; obs.: 29 species recorded including *Falco sparverius*, *Turdus migratorius*, *Sialia mexicana*, *Vireo solitarius*, *Dendroica (coronata) auduboni*, *D. townsendi*, *Icterus (galbula) bullockii*, *Pipilo erythropthalmus*, *Spizella passerina*: Distribution: 12.

405. __________. 1953. Autumnal migration on the Campeche Bank. Auk 70: 338-350.

406. __________. 1955. The ornithogeography of the Yucatan Peninsula. Peabody Mus. Nat. Hist. Bull. 9: 1-347.

407. __________. 1957. Biological investigations in the selva Lacandona, Chiapas, Mexico. Bull. Mus. Comp. Zool. 116: 193-298.

408. ___________. 1957. Birds of Laguna Ocotal. Bull. Mus. Comp. Zool., 116: 249-285.

409. Peters, D. S. 1968. Ornithological autumn observation in the highlands of Mexico. Gefiederte Welt 92: 197-199.

410. Peters, J. L. 1913. List of birds collected in the territory of Quintana Roo, Mexico, in the winter and spring 1912. Auk 30: 367-380.

411. Peterson, R. T. & E. L. Chalif. 1973. A field guide to Mexican birds. Boston, Houghton Mifflin Company.

-------: -------: -------: Obs.; spec.; lit.: Over 1,000 species recorded including 313 nearctic migrants: Distributon; some habitat; some voice: 31.

412. Phillips, A. R. 1960. [The increase in errors in Mexican ornithology with notes on Myiarchus]. An. Inst. Biol. Mexico 30: 355-357.

413. ___________. 1962. [Systematic notes on Mexican birds]. I. An. Inst. Biol. Mexico 32: 333-381.

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416. ___________ & W. J. Schaldach, Jr. 1960. New records of captors from Jalisco, Mexico. Condor 62: 295.

417. Phillips, J. C. 1911. A year's collecting in the state of Tamaulipas, Mexico. Auk 28: 67-89.

418. Pitelka, F. A. 1948. Notes on the distribution and taxonomy of Mexican game birds. Condor 50: 111-113.

419. Richmond, C. W. 1896. Partial list of birds collected at Alta Mira, Mexico, by Mr. Frank B. Armstrong. Proc. U. S. Natl. Mus. 18:627-632.

420. Ridgway, R. 1885. Catalogue of a collection of birds made on the island Cozumel, Yucatan, by the naturalists of the Fish Commission Steamer Albatross, Capt. Z. L. Tanner, Commander: Proc. U. S. Natl. Mus. 8: 560-583.

421. ___________. 1886. Preliminary descriptions of some new species of birds from southern Mexico, in the collection of the Mexican Geographical and Exploring Commission. Auk 3: 331-333.

422. Rowley, J. S. 1935. Notes on some birds of Lower California, Mexico. Condor 37: 163-168.

423. ___________. 1962. Nesting of the birds of Morelos, Mexico. Condor 64: 253-272.

424. ___________. 1966. Breeding records of birds of the Sierra Madre de Sur. Oaxaca, Mexico. Proc. Western Foundation Vertebrate Zool. 1(30: 107-204.

425. Russell, S. M. & D. W. Lamm. 1978. Notes on the distribution of birds in Sonora, Mexico. Wilson Bull. 90: 123-131.

426. Salvin, O. C. 1885. On a collection of birds from the island of Cozumel. Ibis 27: 185-194.

427. _____ _____ & F. D. Godman. 1889. Notes on Mexican Birds. Ibis 1889: 232-243.

428. Sanchez, J. 1878. [Information for the catalogue of birds that live in Mexico and their distribution]. An. Mus. Nac. Mex. 1: 92-110.

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430. Schaldach, W. J., Jr. 1963. The avifauna of Colima and adjacent Jalisco, Mexico. Proc. Western Foundation Vertebrate Zool. 1(1): 1-100.
-------: 1958-1959: Arid thorn scrub; arid thorn forest; riparian gallery forest; tropical deciduous forest; oak woodland; pine-oak forest; fir forest; Obs.: spec.: 339 species recorded including 146 nearctic migrants: Distribution; taxonomy; habitat preference; some reproduction data: 22.

431. Sclater, P. L. 1856. Catalogue of the birds collected by M. Auguste Sallé in southern Mexico. Proc. Zool. Soc. London, pp. 283-311.

432. ___________. 1857. Catalogue of the birds collected by M. Auguste Sallé in southern Mexico. Proc. Zool. Soc. London, pp. 81, 210, 226.

433. ___________. 1857. List of additional species of Mexican birds, obtained by M. Auguste Sallé from the environs of Jalapa and San Andres Tuxtla. Proc. Zool. Soc. London, part 25: 201-207.

434. ___________. 1857. On a collection of birds made by Signor Matteo Botteri in the vicinity of Orizaba in southern Mexico. Proc. Zool. Soc. London, pp. 210-215.

435. ___________. 1857. On a collection of birds received by M. Sallé from southern Mexico. Proc. Zool. Soc. London, Part 25: 226-230.

436. ___________. 1858. Catalogue of the birds collected by M. Auguste Sallé in southern Mexico. Proc. Zool. Soc. London, pp. 95, 294.

437. ___________. 1858. Notes on some birds from southern Mexico. Proc. Zool. Soc. London, pp. 95-99.

438. ___________. 1859. List of birds collected by M. A. Boucard in the State of Oaxaca in southwestern Mexico, with descriptions of new species. Proc. Zool. Soc. London, pp. 369-393.

439. ___________. 1859. On a series of birds collected in the vicinity of Jalapa, in southern Mexico. Proc. Zool. Soc. London, pp. 362-269.

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441. ___________. 1862. On some birds to be added to the avifauna of Mexico. Proc. Zool. Soc. London, pp. 368-369.

442. ___________. 1862. On some birds recently collected by M. Boucard in southern Mexico. Proc. Zool. Soc. London, pp. 18-20.

443. ___________. 1864. List of a collection of birds procured by Mr. George H. White in the vicinity of the city of Mexico. Proc. Zool. Soc. London, pp. 172-179.

444. ___________ & O. C. Salvin. 1869. On a collection of birds made by Mr. H. S. le Strange near the city of Mexico. Proc. Zool. Soc. London, pp. 361-364.

445. Selander, R. K. & D. R. Giller. 1959. The avifauna of the Barranca de Oblatos, Jalisco, Mexico. Condor 61: 211-222.

446. Short, L. L., Jr. & R. C. Banks. 1965. Notes on birds of northwestern Baja, California. Trans. San Diego Soc. Nat. Hist. 14: 41-52.

447. Stager, K. E. 1957. The avifauna of the Tres Marias Islands, Nayarit, Mexico. Auk 74: 413-432.
-------: Apr-May 1955: Scrub; dry tropical forest; rock cliffs; beach: Spec.; obs.; lit.: 85 species recorded including 56 nearctic migrants: Distribution.

448. Stone, W. 1890. On birds collected in Yucatan and southern Mexico. Proc. Acad. Nat. Sci. Philadelphia 42: 201-218.

449. Storer, R. W. 1961. Two collections of birds from Campeche, Mexico. Univ. Michigan Mus. Zool., Occas. Pap. 621.
-------: -------: -------: -------: 212 species including 68 nearctic migrants: Distribution: 9.

450. Sumichrast, F. 1869. The geographical distribution of the native birds of the Department of Vera Cruz, with a list of the migratory species. Mem. Boston Soc. Nat. Hist. 1: 542-563.

451. ___________. 1881. [List of birds observed in the territory of the Mexican Republic]. La Naturaleza, 5, 1881 (1882): 222-250.

452. Sutton, G. M. 1944. At a bend in a Mexican river. Audubon Mag., 46: 344-351.

453. ___________. 1951. Mexican birds: First impressions. Norman, Oklahoma, Univ. Oklahoma Press.
Tamaulipas; Nuevo Leon; Coahuila, Mexico: Jan-Mar 1951: -------: Spec.; obs.: Comments on habits and distribution of several nearctic migrants: 0.

454. ___________. 1972. A bend in a Mexican River. New York, Paul S. Erikson, Inc.

455. ___________ & T. D. Burleigh. 1939. A list of birds observed on the 1938 Semple Expedition to northeastern Mexico. Occas. Pap. Mus. Zool., Louisiana St. Univ. 3: 1-46.

456. ___________ & ___________. 1940. Birds of Las Vigas, Veracruz. Auk 57: 234-243.

457. ___________ & ___________. 1940. Birds of Tamazunchale, San Luis Potosi. Wilson Bull. 52: 221-233.

458. ___________ & ___________. 1940. Birds of Valles, San Luis Potosi, Mexico. Condor 42: 259-262.
------- (200-300' elev.): 23-26 Mar; 29 Apr-2 May 1939: Dry forest; pasture: Spec.; obs.: 87 species recorded including 37 nearctic migrants: Distribution; abundance; reproduction; taxonomy: 1.

459. ___________ & ___________. 1941. Birds recorded in the state of Hidalgo, Mexico, by the Semple Expedition of 1939. Ann. Carnegie Mus. 28: 169-186.

460. ___________, R. B. Lea & E. P. Edwards. 1950. Notes on the ranges and breeding habits of certain Mexican birds. Bird-Banding 21: 45-59.

461. ___________ & O. S. Pettingill, Jr. 1942. Birds of the Gomez Farias region, southwestern Tamaulipas. Auk 59: 1-34.
-------: 12 Mar-4 May 1941: Xerophytic scrub; cypress timber; woodland; palmetto; farmland: Spec.; obs.: 194 species including 88 nearctic migrants: Distribution: 12.

462. ___________, ___________ & R. B. Lea. 1942. Notes on birds of the Monterrey district of Nuevo Leon, Mexico. Wilson Bull. 54: 199-203.

463. Thayer, J. E. 1909. Some rare birds and sets of eggs from the Cape region of lower California. Condor 11: 10-11.

464. Thompson, M. C. 1962. Noteworthy records of birds from the Republic of Mexico. Wilson Bull. 74: 173-176.
-------: -------: -------: Spec.; lit.: Notes on 57 forms including 29 nearctic migrants - see Parkes (1970) for critique of some records: Distribution: 8.

465. Townsend, C. H. 1923. Birds collected in lower California. Bull. Amer. Mus. Nat. Hist. 48: 1-26.

466. Tramer, E. J. 1974. Proportions of wintering North American birds in disturbed and undisturbed dry tropical habitats. Condor 76: 460-464.

Merida, Yucatan, Mexico: 23 Dec 1972-4 Jan 1973: Urban parks and gardens; thorn forest; seral stages: Obs.: 68 species recorded including 30 nearctic migrants: Habitat use: 8.

467. Traylor, M. A., Jr. 1941. Birds from the Yucatan Peninsula. Field Mus. Nat. Hist., Zool. Ser. 24: 195-225.

468. ___________. 1949. Notes on some Veracruz birds. Fieldiana Zool. 31: 269-275.

469. Urban, E. K. 1959. Birds from Coahuila, Mexico. Univ. Kansas Publ. Mus. Nat. Hist. 11: 443-516.

470. van Rossem, A. J. 1909. Some unrecorded species from Los Coronados Islands, Mexico. Condor 11: 208.

471. ___________. 1931. Report on a collection of land birds from Sonora, Mexico. Trans. San Diego Soc. Nat. Hist. 6: 237-304.

472. ___________. 1932. The avifauna of Tiburon Island, Sonora, Mexico, with descriptions of four new races. Trans. San Diego Soc. Nat. Hist. 7: 119-150.

473. ___________. 1945. A distributional survey of the birds of Sonora, Mexico. Occ. Papers Mus. Zool. Louisiana State Univ., no 21.

-------: -------: -------: Spec.; obs.; lit.: Comments on systematics, abundance, distribution, migration dates: 460.

474. ___________. 1947. Comment on certain birds of Baja California including descriptions of three new races. Proc. Biol. Soc. Washington 60: 51-58.

475. van Tyne, J. & M. B. Trautman. 1941. New birds from Yucatan. Occas. Papers Mus. Zool. Univ. Michigan 439.

476. Waide, R. B., J. T. Emlen & E. J. Tramer. 1980. Distribution of migrant birds in the Yucatan Peninsula: A survey. Pp. 165-171 in Migrant birds in the Neotropics: ecology, behavior, distribution and conservation. (A. Keast & E. S. Morton, Eds.). Washington, D. C., Smithsonian Inst. Press.

-------: -------: subevergreen forest; seral stages: Obs.; B. R.: 21 species of migrants mentioned: comparison of census techniques; distribution; abundance: 16.

477. Warner, D. W. & J. R. Beer. 1957. Birds and mammals of the Mesa de San Diego, Puebla, Mexico. Acta Zool. Mexicana 2: 1-22.

-------: (350m elev.) 29 Nov-17 Dec 1951: Mature tropical forest and seral stages: Spec.; obs.: 113 species recorded including 40 nearctic migrants: Distribution: 9.

478. ___________ & R. M. Mengel. 1951. Notes on birds of the Veracruz Coastal Plain. Wilson Bull. 63: 288-295.

479. Webster, J. D. 1958. Further ornithological notes from Zacatecas, Mexico. Wilson Bull. 70: 243-256.

480. ___________. 1959. Another collection from Zacatecas, Mexico. Auk 76: 365-367.

481. ___________. 1968. Ornithological notes from Zacatecas, Mexico. Condor 70: 395-397.

-------: Aug, Sep 1959; Aug 1961; Jan-Feb 1964; Jun-Jul 1964: -------: Spec.; obs.: 23 species recorded including *Charadrius alexandrinus*, *Calidris minutilla*, *Actitis macularia*, *Sphyrapicus varius*, *Dendroica townsendi*, *Wilsonia pusilla*, *Xanthocephalus xanthocephalus*, *Passerculus sandwichensis*, *Spizella passerina*: Distribution: 11.

482. ___________. 1968. Piñon pine-oak Woodland. Audubon Field Notes 22: 701-702.

483. ___________. 1973. Richardson's Zacatacas collection part I. Condor 75: 239-241.

-------: 1888-1889: -------: Spec.; obs.: *Anas crecca*, *A. clypeata*, *Aythya affinis*, *Accipiter cooperii*, *Buteo jamaicensis*, *Limnodromus griseus*, *L. scolopaceus*, *Chordeiles minor*, *Dendroica nigrescens*, *Spiza americana*: Distribution; taxonomy: 10.

484. ___________ & C. C. Harper. 1968. Tropical deciduous forest. Aud. Field Notes 22: 686-687.

485. ___________ & R. T. Orr. 1952. Notes on Mexican birds from the states of Durango and Zacatecas. Condor 54: 309-313.

-------: 20 Jun-31 Jul 1950: Desert; pine; oak; juniper: Spec.; obs.: 33 species treated including *Tringa melanoleuca*, *Chordeiles minor*, *Cistothorus palustris*, *Vireo solitarius*, *Dendroica graciae*, *Geothlypis trichas*, *Icteria virens*, *Icterus parisorum*, *Molothrus aeneus*, *Guiraca caerulea*, *Carduelis psaltria*, *Pipilo fuscus*: Distribution; taxonomy; some life history notes: 20.

486. ___________ & ___________. 1954. Miscellaneous notes on Mexican brids. Wilson Bull. 66: 267-269.

487. Wetmore, A. 1943. The birds of southern Veracruz, Mexico. Proc. U. S. Natl. Mus. 93: 215-340.

Tres Zapotes, Tlacotalpam, and Tuxtla Mountain regions of Veracruz: 5 Mar-16 Apr 1939; 13 Jan-21 May 1940: Marsh, lowland forest, agricultural areas, cloud forest: Obs.; spec.: 291 species were recorded, 86 of which were considered to be nearctic migrants: Distribution, habitat, intratropical migration, taxonomy, habits: 50.

488. Williams, S. O., III. 1977. Colonial waterbirds on the Mexican Plateau. Proc. 1977 Conf. Colonial Waterbird Group: 44-47.

489. Wright, H. W. 1909. An ornithological trip to Los Coronados Island, Mexico. Condor 11: 96-100.

490. Zimmerman, D. A. & G. B. Harry. 1951. Summer birds of Autlan, Jalisco. Wilson Bull. 63: 302-314.

491. ___________ & M. A. Zimmerman. 1975. Bird records of interest from southwestern New Mexico. Western Birds 6: 157-161.

NICARAGUA

492. Belt, T. 1874. The naturalist in Nicaragua. (Everyman's 561) New York E. P. Dutton & Co.

493. Howell, T. R. 1957. Birds of a second-growth rain forest area of Nicaragua. Condor 59: 73-111.
El Recreo, 10 mi. W Rama, Dept. Zelaya, Nicaragua: Aug 1953; 24 Jun - 14 Jul 1954: -------: Spec.; obs.: 158 species treated including *Florida caerulea*, *Butorides (striatus) virescens*, *Cathartes aura*, *Elanoides forficatus*, *Tringa solitaria*, *Actitis macularia*, *Chaetura vauxi*, *Progne (subis) chalybea*, *Stelgidopteryx ruficollis*, *Troglodytes aedon*, *Dendroica petechia*: Distribution; habitat; molt; foods; reproductive state: 48.

494. ___________. 1964. Birds collected in Nicaragua by Bernardo Ponsol. Condor 66: 151-158.
-------: -------: -------: Spec.: 31 species recorded including *Pandion haliaetus*, *Porzana carolina*, *Bartramia longicauda*, *Numenius phaeopus*, *Tringa solitaria*, *Calidris melanotos*, *Tryngites subruficollis*, *Larus pipixcan*, *Sterna caspia*, *Chlidonias niger*, *Tyrannus tyrannus*, *Nuttallornis borealis*, *Agelaius phoeniceus*, *Piranga ludoviciana*, *Guiraca caerulea*: Distribution: 17.

495. ___________. 1965. New subspecies of birds from the lowland pine savannah of northeastern Nicaragua. Auk 82: 438-464.

496. ___________. 1972. Birds of the lowland pine savannah of northeastern Nicaragua. Condor 74: 316-340.
-------: 16 Jan-1 Feb 1963; 11-27 Aug 1965; 10-26 Mar 1966; 15-30 Apr 1967. Savannah in which *Pinus caribaea* is the major tree species: 67 species recorded, 24 species with nearctic migrant populations: Taxonomy; distribution; reproductive biology: 75.

497. Huber, W. 1932. Birds collected in northeastern Nicaragua in 1922. Proc. Acad. Nat. Sci. Philadelphia 84: 205-249.

498. Mayr, E. & D. Amadon. 1932. Birds collected in northeastern Nicaragua in 1922. Proc. Acad. Nat. Sci. Philadelphia 84: 205-249.

499. Nutting, C. C. 1884. On a collection of birds from Nicaragua: Edited by Robert Ridgway. Proc. U. S. Natl. Mus., 1883, 6: 372-410.

500. Peters, J. L. 1884. On a collection of birds from Nicaragua. Proc. U. S. Natl. Mus. 6: 372-410.

PANAMA

501. Aldrich, J. W. 1945. Notes on Panamanian birds. Auk 62: 111-114.
Chepo, Panama: Mar 1911: Coastal savannah: Spec.: Ammodramus savannarum: Distribution; taxonomy: 6.

502. ____________ & B. P. Bole, Jr. 1937. The birds and mammals of the western slope of the Azuero Peninsula (Republic of Panama). Scientific Publications of the Cleveland Museum of Natural History, vol. 7.

503. Arbib, R. S. Jr. & F. W. Loetscher, Jr. 1935. Some notes from the Panama Canal Zone - summer 1934. Auk 52: 325-328.
Panama Vieja; Rio Tapia; Madden Dam; Barro Colorado Island; Pedro Miguel; "Gatun Atlantic side": Jul-Aug. 1934: Beach; mud flat; savannah; swamp; forest; seral stages, scrub woodland: Spec.: obs.: 37 species of nearctic migrants recorded; some comments on breeding season in residents.

504. Bangs, O. 1901. Birds of San Miguel Island, Panama. Auk 18: 24-32.

505. ____________. 1902. On a second collection of birds made in Chiriqui, by W. W. Brown, Jr. Proc. New England Zool. Cl. 3:16-70.

506. ____________ & T. Barbour. 1922. Birds from Darien. Bull. Mus. Comp. Zool. 65: 191-229.

507. Beason, R. C. 1976. An observation of nocturnal passerine migration through Panama. Condor 78: 117-118.
Balboa, Canal Zone, Panama: 2-3 Nov 1972: -------: Obs.: -------: Migration traffic rate of 14,000 birds per hr. with a mean heading of 75° was recorded: 2.

508. Blake, E. R. 1958. Birds of Volcán de Chiriquí, Panamá. Fieldiana, Zool. 36: 499-577.
-------: (elev. 5000'-10,000'): 1932-1952: -------: Spec.: 235 forms recorded including 43 nearctic migrants: Distribution: 39.

509. Burton, P. J. K. 1973. Non-passerine bird weights from Panama and Colombia. Bull. British Ornith. Club 93: 116-118. London.

510. Cassin, J. 1860. Catalogue of birds collected during a survey of a route for a shipcanal across the Ishtmus of Darien, by order of the Government of the United States, made by Lieut. N. Michler, of the U. S. Topographical Engineers, with notes and descriptions of new species. Proc. Acad. Nat. Sci. Philadelphia 12: 132-144, 188-197.

511. Chapman, F. M. 1929. My tropical air castle. New York, Appleton & Co.

Barro Colorado Island, Gatun Lake, Panama: -------: Lowland tropical forest and seral stages; lake and marsh borders: 42 species with migratory populations known to breed in nearctic have been recorded at Barro Colorado: some comments on migrants (p. 352): no bibliography.

512. ____________. 1938. Life in an air castle. New York, Appleton & Co.

513. Davidson, M. E. M. 1938. On some birds rare in, or hitherto unrecorded from, Chiriqui Province, Panama. Proc. California Acad. Sci. 23(17): 255-261.

514. Edwards, E. P. & H. Loftin. 1971. Finding birds in Panama. 2nd ed. E. P. Edwards, Sweetbriar, Va.

515. Eisenmann, E. 1948. Surf-bird and Vermilion Flycatcher in Panama. Auk 65: 605-606.

516. ____________. 1951. Northern birds summering in Panama. Wilson Bull. 63: 181-185.

Near Panama City, Panama: "several times between June 17 and 16 July", 1948, 1949 and 1950: Sea shore: Obs.: *Ardea herodias*, *Florida caerulea*, *Egretta thula*, *Pandion haliaetus*, *Charadrius hiaticula*, *Pluvialis squatarola*, *Arenaria interpres*, *Limnodromus griseus*, *Numenius phaeopus*, *Catoptrophorus semipalmatus*, *Calidris mauri*, *Larus atricilla*, *L. pipixcan*, *Gelochelidon nilotica*, *Sterna hirundo*, *S. maximus*, *Chlidonias niger*, *Chordeiles minor*: Distribution; over-summering: 14.

517. ____________. 1952. Annotated list of birds of Barro Colorado Island. Smithsonian Misc. Coll. 117: 5: 1-62.

-------: -------: Clearing, primary tropical forest, secondary forest, water edges: 305 species are recorded, 52 of which are considered "migrants from North America" North American migrant and Panamanian resident populations suspected for the following species: *Ardea herodias*, *Butorides (striatus) virescens*, *Ixobrychus exilis*, *Cathartes aura*, *Stelgidopteryx ruficollis*: Abundance; distribution; habitat; some breeding information: 66.

518. ____________. 1955. Cattle Egret, Marbled Godwit, Surfbird and Brown-chested Martin in Panama. Auk 72: 426-428.

519. ____________. 1957. Notes on birds of the Province of Boca del Toro, Panama. Condor 59: 247-262.

-------: 29 Jun - 4 Jul 1956: Flooded banana plantations; river forest; mangrove; seral stages: Spec.; obs.: *Podilymbus podiceps*, *Pelecanus occidentalis*, *Anhinga anhinga*, *Cathartes aura*, *Gallinula chloropus*, *Porphyrula martinica*, *Catoptrophorus semipalmatus*, *Larus pipixcan*, *Chlidonias niger*, *Sterna hirundo*, *S. maximus*, *Hirundo rustica*, *Troglodytes (aedon) musculus*, *Vireo (olivaceus) flavoviridis*; also reports on wintering *Anas discors*, *A. americana*, *A. acuta*, *A. clypeata*, *Aythya affinis*, *Fulica americana*, *Progne subis*: Abundance; distribution: 38.

520. ____________. 1970. Avifauna in Panama. Smithsonian Contr. Zool. 26: 50-57.
-------: -------: -------: Obs.; lit.: Migrants tend to be more flexible in terms of habitat requirements than residents; most serious threats to migrant and resident avifauna are habitat destruction and uncontrolled hunting of game species: 0.

521. ____________ & H. Loftin. 1967. Birds of the western Chiriqui Highlands: Florida Aubudon Society Field Checklist.

522. ____________ & ____________. 1967. Field check-list of the birds of the Panama Canal Zone. Florida Audubon Society, Maitland, Florida.

523. ____________ & ____________. 1967. A list of birds known from the Cerro Campana Area, Panama (1967). Florida State Univ. Ctr. Trop. Stud. Spec. Rep. 3.

524. ____________ & ____________. 1968. Birds of the Panama Canal Zone area, Panama (1967). Florida Nat. 41: 57-60, 95.
-------: -------: -------: Spec.; obs.; lit.: Of 538 species, 29 nearctic migrants have resident populations; 128 occur as transients or winter residents; and *Ardea herodias*, *Butorides (striatus) virescens*, *Ixobrychus exilis*, *Cathartes aura*, *Elanoides forficatus*, *Buteo jamaicensis*, *Gallinula chloropus*, *Charadrius wilsonia*, *Himantopus mexicanus*, *Sterna fuscata*, *Rynchops niger*, *Zenaida macroura*, *Chordeiles acutipennis*, *C. minor*, *Progne subis*, *Dendroica petechia* probably have populations that are resident as well as populations that are migratory: Distribution: 15.

525. ____________ & ____________. 1971. Field check-list of birds of the Panama Canal Zone area. 2nd ed. Florida Aud. Soc.
-------: -------: -------: Spec.; obs.: lit: 565 species reported including 170 nearctic migrants: Status: 16.

526. ____________ & ____________. 1972. Birds of the western Chiriqui Highlands, Panama. 2nd ed. Florida Aud. Soc. Field Check-list.
------- (elev. 1,000m): -------: -------: Spec.; obs.; lit.: 429 species recorded including 94 nearctic migrants: Status: 18.

527. Galindo, P. & E. Mendez. 1966. Banding of thrushes and catbirds at Almirante, Panama. Bird-Banding 36: 233-239.

528. Goldman, E. A. 1920. Mammals of Panama. Smithsonian Misc. Coll. 69: 1-309. (Pp. 25-42 on birds).

529. Griscom, L. 1927. An ornithological reconnaissance in eastern Panama in 1927. Amer. Mus. Novit. 282: 1-10.

530. ____________. 1929. A collection of birds from Cana, Darien. Bull. Mus. Comp. Zool. 69: 149-190.

531. ____________. 1932. The ornithology of the Caribbean coast of extreme eastern Panama. Bull. Mus. Comp. Zool. 72: 303-372.

532. ____________. 1935. The ornithology of the Republic of Panama. Bull. Mus. Comp. Zool. 78: 261-382.

533. ____________ & A. H. Miller. 1929. A collection of birds from Darien. Bull. Mus. Comp. Zool. 69: 149-190.

534. Hallinan, T. 1924. Notes on some Panama Canal Zone birds with special reference to their food. Auk 41: 304-326.
-------: -------: -------: Spec.: 159 species recorded including 37 species of nearctic migrants: Distribution; stomach contents: 0.

535. Hartman, F. A. 1957. Some additions to nesting data on Panamanian birds. Condor 59: 269-271.

536. Heath, R. E. 1932. Notes on some birds of Barro Colorado Island, Canal Zone. Ibis, Ser. 13, 2: 480-487.

537. Hobson, D. M. 1948. An annotated list of birds seen in the Canal Zone and Panama. Indiana Aud. Soc. Year Book, 1948, 304-326.

538. Howell, T. R. 1968. Review of "The birds of the Republic of Panama, Part 1", by Alexander Wetmore, 1965, Smithsonian Misc. Coll. 150. Auk 85: 150-152.

539. Imhof, T. A. 1950. Additional bird records for Panama. Auk, 67: 255-257.
-------: Jan 1942-Feb 1943: -------: Obs.: *Falco peregrinus*, *Pluvialis dominica*, *Aphriza virgata*, *Calidris bairdii*, *C. alba*, *Sterna hirundo*, *S. sandvicensis*, *Riparia riparia*, *Vermivora pinus*: Distribution: 3.

540. Jewel, L. L. 1913. Some North American birds in Panama. Auk 30: 422-429.
Gatun, Canal Zone, Panama: 1911-1912: -------: Obs.; spec.: Notes on 66 nearctic migrants wintering or resident in Panama: Distribution; migration dates: 0.

541. Karr, J. R. 1971. Ecological, behaviorial, and distributional notes on some Central Panama birds. Condor 73: 107-111.
-------: 1 Jul 1968-31 Jul 1969: -------: B-R; obs.; *Helmitheros vermivorus*: Distribution: 11.

542. Kennard, F. H. & J. L. Peters. 1928. A collection of birds from the Almirante Bay region of Panama. Proc. Boston Soc. Nat. Hist. 38: 443-465.

543. Leck, C. F. 1975. Weights of migrants and resident birds in Panama. Bird-Banding 46: 201-203.
Volcan de Chiriqui Field Station, Cerro Punta; Barro Colorado Island, Panama: "Spring" 1968; "winter" 1968-1969: Agricultural areas: montane forest; lowland rain forest: B-R: *Catharus ustulatus*, *Vireo philadelphicus*, *Vermivora peregrina*, *Wilsonia pusilla*, *Piranga rubra*, *Passerina cyanea*: Weight changes: 4.

544. ____________ & S. L. Hilty. 1970. New and interesting records from the Chiriqui Highlands of Panama. Condor 72: 105.

545. ____________ & D. E. Wilson. 1970. A bird census in the Panama Canal Zone. Carib. J. Sci. 10: 101-104.
Frijoles Station, Canal Zone, Panama: 29 Dec 1968: 50% lake, 45% lowland rain forest, 5% clearings: Obs.: 75 species recorded including Pelecanus occidentalis, Butorides striatus, Cathartes aura, Pandion haliaetus, Gallinula chloropus, Porphyrula martinica, Sterna maxima, Progne (subis) chalybea, Stelgidopteryx ruficollis, Vermivora peregrina, Dendroica petechia, D. pensylvanica, Icterus galbula: Distribution: 0.

546. Loftin, H. 1963. Notes on autumn bird migrants in Panama. Carib. J. Sci. 3: 63-68.
-------: 1 Aug-30 Nov 1961; 1962: -------: B-R; obs; spec.: Notes on 57 species of nearctic migrants including Cathartes aura, Circus cyaneus, Tyrannus dominicensis: Migration; distribution: 1.

547. ____________ & S. L. Olson. 1963. Notes on spring migrants in Panama (Aves). Carib. J. Sci. 3: 191-195.
-------: 1 Mar-7 Jun 1962; 1963: -------: B-R; obs.; spec.: Notes on 48 species of nearctic migrants including Cathartes aura, Porphyrula martinica, Sterna sandvicensis (a bird banded in Louisiana, U.S.A.) Distribution; migration: 2.

548. Mendez, E. 1969. A brief introduction to birds of Panama. Rep. Monogr. Non. Ser. 57.

549. Murphy, R. C. 1943. Notes on Pearl Islands ornithology. Auk 62: 114-117m
-------: 9-15 Feb; 23-26 May 1941: -------: Spec.; obs.: Coragyps atratus, Cathartes aura, Haematopus palliatus, Tyrannus melancholichus, Protonotaria citrea, Dendroica petechia, Icterus galbula: Distribution: 3.

550. Olson, S. L., G. V. N. Powell & E. Eisenmann. 1968. Distribution records from Cerro Campana, Panama, with notes on nesting of the Quail-Dove, Geotrygon lawrencii. Condor 70: 179-180.

551. Peters, J. L. 1931. Additional notes on the birds of the Almirante Bay region of Panama. Bull. Mus. Comp. Zool. 71: 293-345.

552. Rendahl, H. 1920. A list of the birds of the Pearl Islands, Bay of Panama. Arkansas Zool. 13: 1-57.

553. Ridgely, R. S. 1976. A guide to the birds of Panama. Princeton, N. J., Princeton Univ. Press.
-------: -------: -------: Obs.; spec.; lit.: 880 species recorded including 194 nearctic migrants of which 43 are known to breed in Panama: Comments on climate, migration, conservation: Distribution; abundance; habitat; habits: 39.

554. Scholes, R. T. & K. T. Scholes. 1954. Notes from Panama and the Canal Zone. Condor 56: 166-167.
-------: Jun 1950-Jun 1951: -------: Obs.: Aythya collaris, Buteo jamaicensis, Larus pipixcan, Sphyrapicus varius, Bombycilla cedrorum: Distribution: 2.

555. Stone, W. 1918. Birds of Panama Canal Zone with special reference to a collection made by Mr. Lindsey L. Jewel. Proc. Acad. Nat. Sci. Philadelphia 70: 239-280.
-------: 1910-1913: -------: Spec.: 432 species recorded of which 91 are nearctic migrants: Distribution: 2.

556. Sturgis, B. B. 1928. Field book of birds of the Panama Canal Zone. New York, G. P. Putnam & Sons.
-------: -------: -------: Spec.: obs.; lit.: 434 species treated; 83 nearctic migrants including *Ardea herodias*, *Botaurus lentiginosus*, *Anas platyrhynchos*, *A. americana*, *A. acuta*, *Aythya affinis*, *Falco sparverius*, *Megaceryle alcyon*, *Dendroica coronata*: Distribution: 6.

557. Van Tyne, J. 1950. Bird notes from Barro Colorado Island, Canal Zone. Univ. Michigan Mus. Zool., Occ. Pap. 525.
-------: 24 Jun-28 Aug 1925; Feb-May 1926; 24 Feb-21 Aug 1927: Lowland tropical evergreen forest: Obs.: spec.: Notes on 13 species including *Ardea herodias*, *Florida caerulea*, *Butorides* (*striatus*) *virescens*, *Troglodytes* (*aedon*) *musculus*: Life history; taxonomy: 13.

558. Wetmore, A. 1927. The birds of the Isthmus of Panama. Bull. Biol. Soc. Washington 2: 211-216.

559. ___________. 1946. The birds of San Jose and Pedro Gonzales Islands, Republic of Panama. Smithsonian Misc. Coll. 106.

560. ___________. 1950. Additional forms of birds from the Republics of Panama and Colombia. Proc. Biol. Soc. Washington 63: 171-174.

561. ___________. 1951. Additional forms of birds from Colombia and Panama. Smithsonian Misc. Coll. 117 (2).

562. ___________. 1952. The birds of the islands of Tabago, Taboguilla, and Urava, Panama. Smithsonian Misc. Coll. 134 (9).

563. ___________. 1953. Further additions to the birds of Panama and Colombia. Smithsonian Misc. Coll. 122 (8).

564. ___________. 1957. The birds of Isla Coiba, Panama. Smithsonian Misc. Coll. 134 (9).

565. ___________. 1959. The birds of Isla Escudo de Veraguas, Panama. Smithsonian Misc. Coll. 139 (2).

566. ___________. 1962. Systematic notes concerned with the avifauna of Panama. Smithsonian Misc. Coll. 145 (1).

567. ___________. 1963. Additions to records known from the Republic of Panama. Smithsonian Misc. Coll. 145 (6).

568. ___________. 1965, 1968, 1972. The birds of the Republic of Panama. Parts 1-3. Washington, D. C. Smithsonian Inst.

569. ___________. 1972. The birds of the Isthmus of Panama. Bull. Biol. Soc. Washington 2: 211-216.

570. ___________ & P. Galindo. 1972. Additions to the birds recorded in Panama. Proc. Biol. Soc. Washington 85: 309-311.

571. Willis, E. O. & E. Eisenmann. 1979. A revised list of birds of Barro Colorado Island, Panama. Smithsonian Contr. Zool. 291.
-------: -------: Lowland tropical forest and seral stages; lake; lakeshore: Spec.; obs.: 366 species listed including 99 nearctic migrants: Distribution; population changes: 64.

572. Worth, C. B. 1939. Nesting of some Panamanian birds. Auk 56: 306-310.

WEST INDIES

Includes Swan Island, Cayman Islands, Dutch Leeward Islands (Aruba, Curaço, Bonaire), Old Providence Island, St. Andrews Island, Carribbean Sea.

573. Bangs, O. 1916. A collection of birds from the Cayman Islands. Bull. Mus. Comp. Zool. 60: 303-320.

574. Bond, J. 1936. Birds of the West Indies. Acad. Nat. Sci. Philadelphia.

575. ___________. 1939. Notes of birds from the West Indies and other Caribbean Islands. Not. Nat. 13: 1-6.

576. ___________. 1940. Check-list of birds of the West Indies. Acad. Nat. Sci. Philadelphia.

577. ___________. 1945. Additional notes on West Indian birds. Not. Nat. 148: 1-4.

578. ___________. 1947. Field guide to birds of the West Indies. New York, McMillan Co.

579. ___________. 1950. Check-list of birds of the West Indies. 3rd ed. Lancaster Pa. Wickersham Printing Co.

580. ___________. 1950. Results of the Catherwood-Chaplan West Indies expedition, 1948. Part II. Birds of Cayo Largo (Cuba), San Andres and Providencia. Proc. Acad. Nat. Sci. Philadelphia 102: 43-68.
-------: Apr, May 1948: Semi-arid scrub; mangrove: Obs.; spec.: Distributional and ecological notes on 49 nearctic migrants, at least 7 of which occurred as breeding birds (Pelecanus occidentalis, Ardea herodias, Butorides [striatus] virescens, Pandion haliaetus, Sterna maxima, Chordeiles minor, Dendroica petechia): 14.

581. ___________. 1951. First supplement to the check-list of birds of the West Indies (1950). Acad. Nat. Sci. Philadelphia.

582. ___________. 1952. Second supplement to the check-list of birds of the West Indies (1950). Acad. Nat. Sci. Philadelphia.

583. ___________. 1956. Check-list of birds of the West Indies. 4th ed. Acad. Nat. Sci. Philadelphia.

584. ___________. 1956. First supplement to the check-list of birds of the West Indies. Acad. Nat. Sci. Philadelphia.
-------: -------: -------: Spec.; obs.; lit.: Migrant records; Several refs.

585. ___________. 1957. Second supplement to the check-list of birds of the West Indies. Acad. Nat. Sci. Philadelphia.
-------: -------: -------: Spec. obs.; lit: Comments on West Indian zoogeography including critiques of Schmidt (1954) and Simpson (1956); possible breeding of Anas discors in Cuba; taxonomic status of Sterna (sandvicensis) eurygnathus; discussion of Vireo modestus as part of a superspecies including V. griseus; Dendroica vitellina very closely related to D. discolor; other migrant records: Several refs.

586. ____________. 1958. Third supplement to the check-list of the birds of the West Indies. Acad. Nat. Sci. Philadelphia.

-------: -------: -------: Spec.; obs.; lit: Comments on zoogeography of West Indies indicating that the avifauna of this region is "predominantly nearctic"; presents a critique of ideas presented by Mayr (1946) and Darlington (1957); comment on Dutch Leeward Islands population of *Sterna hirundo*; taxonomic status of *Troglodytes* (*aedon*) *musculus*; other migrant records: Several refs.

587. ____________. 1959. Fourth supplement to the check-list of birds of the West Indies. Acad. Nat. Sci. Philadelphia.

-------: -------: -------: Spec.; obs.; lit.: Comments on West Indian zoogeography; records of migrants: Several refs.

588. ____________. 1960. Birds of the West Indies. London, Collins.

589. ____________. 1960. Fifth supplement to the check-list of the birds of the West Indies. Acad. Nat. Sci. Philadelphia.

-------: -------: -------: Spec.; lit.; obs.: taxonomic notes on *Progne subis*; comments on island races of *Troglodytes aedon*; notes on West Indian *Vireo* species and *Dendroica petechia*; other migrant records: Several refs.

590. ____________. 1961. Birds of the West Indies. Boston, Houghton Mifflin Co.

-------: -------: -------: Spec.; lit.; obs.: 487 species recorded including 210 nearctic migrants; of these 193 occur regularly in the islands; 78 nearctic migrants have breeding populations in the West Indies: Range; habitat; nidification: 0.

591. ____________. 1961. Sixth supplement to the check-list of birds of the West Indies (1956). Acad. Nat. Sci. Philadelphia.

-------: -------: -------: Spec.; lit.; obs.: Comments on the origins of West Indian and Central American avifauna; taxonomic notes on *Progne* (*subis*) *dominicensis*; other notes on migrants: Several refs.

592. ____________. 1962. Seventh supplement to the check-list of the birds of the West Indies (1956). Acad. Nat. Sci. Philadelphia.

-------: -------: -------: Spec.; obs.; lit.: Comment on the status of *Caprimulgus vociferus*; other migrant records: Several refs.

593. ____________. 1963. Eighth supplement to the check-list of birds of the West Indies (1956). Acad. Nat. Sci. Philadelphia.

-------: -------: -------: Spec.; lit.; obs.: notes on the status of *Chordeiles minor*, *Limosa fedoa*, *Rynchops niger*, *Hirundo rustica*; other migrant records: Several refs.

594. ____________. 1964. Ninth supplement to the check-list of birds of the West Indies (1956). Acad. Nat. Sci. Philadelphia.

-------: -------: -------: Spec.; lit; obs.: *Falco sparverius* is increasing its breeding range in the West Indies; early and late dates in West Indies are given for 78 migrant species; notes on *Dendrocygna bicolor*, *Oxyura jamaicensis*, *Falco sparverius*, *Fulica americana*, *Progne subis*, *Toxostoma rufum*, *Vermivora celata*; other migrant records; Several refs.

595. ____________. 1965. Tenth supplement to the check-list of birds of the West Indies (1956). Acad. Nat. Sci. Philadelphia.
-------: -------: -------: Spec.; lit.; obs.: Differences in voice between Puerto Rican and mainland *Caprimulgus vociferus*; winter and permanent resident races of *Chordeiles minor* call during the "early part of the breeding season" in the West Indies; voice differences in races of *Troglodytes aedon*, *Dendroica petechia*, *D. pinus*, *Agelaius phoeniceus*, *Sturnella magna*; breeding in Cuba of *Dendrocygna bicolor*; comment on close affinity of *Accipiter gundlachi* to *A. cooperii*; distribution notes on *Laterallus jamaicensis*, *Numenius borealis*, *Chaetura pelagica*; early date of 7 Aug recorded for *Dendroica caerulea* in West Indies; migrant sight records: Several refs.

596. ____________. 1966. Eleventh supplement to the check-list of birds of the West Indies (1956).
-------: -------: -------: Spec.; obs. lit.: Distributional notes on *Plegadis falcinellus*, *Accipiter striatus*, *Fulica americana*, *Sterna sandvicensis*, *Dendrocygna* spp.: taxonomic notes on *Oxyura jamaicensis*; notes on wintering *Dendroica fusca*, *Vermivora peregrina* in Cuba; other migrant records; Several refs.

597. ____________. 1967. Twelth supplement to the check-list of birds of the West Indies (1956).
-------: -------: -------: Spec.; lit.; obs.: Observations on Puerto Rican populations of *Caprimulgus vociferus*; *Contopus virens* is a regular transient in western Cuba; *Dendroica castanea* is a rare but regular transient of the western Bahamas and western Antilles; records of other migrants: Several refs.

598. ____________. 1968. Thirteenth supplement to the check-list of birds of the West Indies (1956). Acad. Nat. Sci. Philadelphia.
-------: -------: -------: Spec.; obs.; lit.: Taxonomic status of *Buteo platypterus*; records of other migrants: Several refs.

599. ____________. 1969. Fourteenth supplement to the check-list of the birds of the West Indies (1956). Acad. Nat. Sci. Philadelphia.
-------: -------: -------: Spec.; obs.; lit.: Comments on the zoogeography of southern North America and Central America; taxonomic status of *Sterna sandvicensis*, *Chordeiles* spp., *Progne subis*; other migrant records: Several refs.

600. ____________. 1970. Fifteenth supplement to the check-list of birds of the West Indies (1956). Acad. Nat. Sci. Philadelphia.
-------: -------: -------: Spec.; obs.; lit.: Range corrections for breeding forms of *Buteo jamaicensis*, *Pandion haliaetus*, *Falco sparverius*, are presented; comments on the status of *Laterallus jamaicensis*, *Haematopus palliatus*, *Athene cunicularia*, *Contopus virens*, *Limnothlypis swainsonii*, *Dendroica striata*: Several refs.

601. ____________. 1971. Birds of the West Indies. 2nd ed. London, Collins.
-------: 1926-1971: -------: Obs.; spec.; lit.: 317 sp. found regularly in the West Indies and 95 vagrants; of the 317 regular species, 180 are nearctic migrants; 59 nearctic migrants have breeding populations in the West Indies: Distribution; migration routes; breeding; description; voice; local names; habitat; nidification: 0.

602. ____________. 1971. Birds of the West Indies. 3rd ed. Boston, Houghton Mifflin.

603. ____________. 1971. Sixteenth supplement to the check-list of birds of the West Indies (1956). Acad. Nat. Sci. Philadelphia.
-------: -------: -------: Obs.; spec.; lit.: *Porzana carolina* is vocal in marshes in winter; *Progne subis* may include *P. cryptoleuca*, *P. dominicensis*, *P. simaloae* and *P. chalybea*; *Troglodytes aedon* may be conspecific with *T. musculus*: three of six Lesser Antillean subspecies of *T. aedon* are extinct: Several refs.

604. ____________. 1972. Seventeenth supplement to the check-list of birds of the West Indies (1956). Acad. Nat. Sci. Philadelphia.
-------: -------: -------: Spec.; lit; obs.: *Caprimulgus vociferus* has breeding populations in Puerto Rico; summering (June) *C. carolinensis*, *Myiarchus crinitus* and *Euphagus carolinensis* on Andros, Bahamas; some comments on West Indian evolution in *Dendroica*; argues that Bahama fauna is predominantly Greater Antillean in origin; *Catharus minimus* winter in Hispaniola, perhaps Jamaica: Several refs.

605. ____________. 1973. Eighteenth supplement of the check-list of birds of the West Indies (1956). Acad. Nat. Sci. Philadelphia.
-------: -------: -------: Spec. lit.: *Buteo platypterus* has breeding populations in Cuba as does *Athene cunicularia*; *Accipiter striatus* is resident in Puerto Rico; other migrant records: Several refs.

606. ____________. 1974. Nineteenth supplement to the check-list of birds of the West Indies (1956). Acad. Nat. Sci. Philadelphia.
-------: -------: -------: Spec.; lit.; obs.: Affinities of birds in the Antilles and Bahamas are with old North American avifauna; *Polioptila caerulea* and *Dendroica dominica* reached the Bahamas from Florida; several migrant records: Several refs.

607. ____________. 1976. Twentieth supplement to the check-list of birds of the West Indies (1956). Acad. Nat. Sci. Philadelphia.
-------: -------: -------: Spec.; obs.; lit.: *Coccyzus minor* is partially migratory with the south Florida race (*C. m. maynardi*) breeding in summer and rare in winter; *Fulica americana* breeds in Cuba and other parts of the West Indies as does *Oxyura jamaicensis*; several sight and specimen records of nearctic migrants: Several refs.

608. ____________. 1977. Twenty-first supplement to the check-list of birds of the West Indies (1956). Acad. Nat. Sci. Philadelphia.
-------: -------: -------: Spec.; obs.; lit.: *Numenius phaeopus* now regular in the West Indies; *Chordeiles minor* - summer resident on Anegada; considers *Catharopeza* derived from a primitive *Dendroica*; presents other migrant records: Several refs.

609. ____________. 1978. Twenty-second supplement to the check-list of birds of the West Indies (1956). Acad. Nat. Sci. Philadelphia.

610. ____________. 1978. Twenty-third supplement to the check-list of birds of the West Indies (1956). Acad. Nat. Sci. Philadelphia.

611. ___________ & R. Meyer de Schauensee. 1944. The birds of the Islands of Old Providence and St. Andrews. Acad. Nat. Sci. Philadelphia. Monogr. 6.

612. Boswall, J. 1978. The birds of Alacran Reef, Gulf of Mexico. Bull. British Ornith. Club 98: 99-109.

613. Buhrman, C. B. & L. A. Hopkins. 1978. Eleven pelagic trips into the eastern Gulf of Mexico. Florida Field Nat. 6: 30-32.

614. Cory, C. B. 1886. The birds of the West Indies, including the Bahama Islands, the Greater and Lesser Antilles, excepting the islands of Tobago and Trinidad. Auk 3: 1-59; 187-245; 337-381; 454-472.

615. ___________. 1886. A list of the birds collected in the island of Grand Cayman, West Indies, by W. B. Richardson, during the summer of 1886. Auk 3: 501-502.

616. ___________. 1887. A list of the birds taken by Mr. Robert Henderson, in the islands of Old Providence and St. Andrews, Caribbean Sea, during the winter of 1886-1887. Auk 4: 180-181.

617. ___________. 1889. A list of the birds collected by Mr. C. J. Maynard in the islands of Little Cayman and Cayman Brack, West Indies. Auk 6: 30-32.

618. ___________. 1892. Catalogue of West Indian birds. Boston, Publ. by author.

619. English, T. M. 1916. Notes on some birds of Grand Cayman, W. I. Ibis Ser. 10, 4: 17-35.

620. Faaborg, J. R. & J. W. Terborgh. 1980. Patterns of migration in the West Indies. Pp. 157-163. in Migrant birds in the Neotropics: ecology, behavior, distribution and conservation. (A. Keast & E. S. Morton, Eds.). Washington, D.C., Smithonsonian Inst. Press.

-------------: 1969-1976, 11 trips during "winter: ------------: Obs.; FA; B-R; lit.: 81 migrants considered: Insectivores predominate in West Indies because insects are a more stable, dependable resource in the region than fruits or seeds: 11.

621. Gochfeld, M., D. O. Hill & G. Tudor. 1973. A second population of the recently described Elfin Woods Warbler and other bird records from the West Indies. Carib. J. Sci. 13: 231-235.

Luquillo forest, Puerto Rico; San Juan Harbor, Puerto Rico; Barbados airport; Barahona, Dominican Republic: Jan-Feb 1972: -------: Obs.: Accipiter striatus, Bartramia longicauda, Larus delawarensis, L. pipixcan, Gelochelidon nilotica, Icterus galbula, Guiraca caerulea: Distribution: 15.

622. Grubbe, O. 1972. On the birds of the West Indies. Gefiederte Welt 96: 135-137.

-------: -------: -------: Lit.: Icterus galbula: comments on characteristic species: 0.

623. Hartert, E. 1893. On the birds of the islands of Aruba, Curaçao and Bonaire. Ibis 19: 289-338.

624. Hummelinck, P. W. 1940. Studies on the fauna of Curaçao, Aruba, Bonaire and the Venezuelan Islands. Utrecht, N. V. Drukkerij P. Den Boer.

625. Johnston, D. W. 1965. Grant Cayman Island in early May. Broadsheet No. 5: 3 (Gosse Bird Club, Jamaica).

626. ___________. 1974. Food of the barn owl on Grand Cayman, B.W.I. Quart. J. Florida Acad. Sci. 35: 171-172.

627. ___________, C. H. Blake & D. W. Buden. 1971. Avifauna of the Cayman Islands. Quart. J. Florida Acad. Sci. 34: 141-156.

-------: -------: -------: Obs.; lit.: 151 species recorded 111 of which have nearctic migrant populations: Distribution: 33.

628. Kidd, E. R. G. 1965. Grand Cayman - January 23 - 28, 1964. Broadsheet No. 4: 3 (Gosse Bird Club, Jamaica).

629. Lowe, P. R. 1909. Notes on some birds collected during a cruise in the Caribbean Sea. Ibis, Ser. 9, 3: 304-347.

630. ___________. 1911. On the birds of the Cayman Islands, West Indies. Ibis 5: 137-161.

631. Mason, C. R. 1972. Field check-list of the birds of Aruba, Curacao and Bonaire, N.W.I. Kissimmee, Florida, Flying Carpet Tours.

632. Maynard, C. J. 1890. Notes on West Indian birds. Cont. Sci. 1: 171-181; 2: 92-105.

633. ___________. 1898. A catalogue of the birds of the West Indies which do not occur elsewhere in North America north of Mexico. Newtonville, Massachusetts, privately printed.

634. Nicoll, M. J. 1904. On a collection of birds made during the cruise of the "Valhalla" R.Y.S., in the West Indies. Ibis, Ser. 8, 4: 555-591.

635. Palmer, W. & J. H. Riley. 1902. Descriptions of three new birds from Cuba and the Bahamas. Proc. Biol. Soc. Wash. 15: 33-34.

636. Patti, S. T., D. I. Rubenstein & N. Rubenstein. 1974. Distributional notes on the birds of Cayman Brac. Flordia Sci. 37: 155-156.

-------: 17-24 Nov 1973: -------: Obs.: *Anas americana*, *Falco columbarius*, *Gallinula chloropus*, *Capella gallinago*, *Helmitheros vermivorus*, *Parula americana*, *Dendroica virens*, *D. palmarum*, *Passerculus sandwichensis*: Distribution: 4.

637. Paulson, D. R., G. H. Orians & C. F. Leck. 1969. Notes on birds of Isla San Andres. Auk 86: 755-758.

-------: Dec 1966; Apr, Jul 1967: Mangrove; low coppice; coconut groves: Obs.: 92 species recorded at least 59 of which were nearctic migrants: " ... the effective species pool for immigration to tropical islands is virtually restricted to resident tropical species of adjacent islands and continental areas." Zoogeography; distribution: 7.

638. Paynter, R. A., Jr. 1956. Birds of the Swan Islands. Wilson Bull. 68: 103-110.
-------: -------: -------: Spec.; lit.: 64 species recorded including 54 nearctic migrants: Distribution: 11.

639. Phelps, W. H. & W. H. Phelps, Jr. 1951. [The birds of Bonarie]. Bol. Soc. Venezuela. Cien. Nat. 12 (77): 161-187.

640. Schwartz, A. & R. F. Klinikowski. 1963. Observations on West Indian birds. Proc. Acad. Nat. Sci. Philadelphia 115: 53-77.
-------: Jun 1960-Sep 1962: -------: Spec.; obs.: 93 species recorded including 64 nearctic migrants: Distribution: 17.

641. ___________ & ____________. 1965. Additional observations on West Indian birds. Acad. Nat. Sci. Philadelphia. Not. Nat. 376: 1-16.

642. Spaans, A. L. 1974. Some bird records from Bonaire. Ardea 62: 236-238.

643. Taylor, E. C. 1864. Five months in the West Indies. Part I. Ibis 6: 73-97.

644. van der Werf, P. A., J. S. Zaneveld & K. H. Voous. 1958. Field observations on the birds of the Islas Las Aves in the southern Caribbean Sea. Ardea 46: 37-58.

645. Voous, K. H. 1954. Het ornithologisch onderzoek van de Nederlands Antillen tot 1951. Ardea 41: 23-24.

646. ___________. 1955. The birds of the Netherlands Antilles. The Hague-Curçao.
Bonaire, Curçao, Aruba (Leeward Islands) and St. Maarten, St. Eustatius, Saba (Windward Islands), Netherlands Antilles: Sep 1951-Apr 1952: -------: Spec.; obs.; lit.: 130 species were recorded from the Leeward Islands, 90 of which were considered transients or winter residents from North America; 62 species were recorded for the Windward Islands, 40 of which were considered North American Migrants; *Pelecanus occidentalis*, *Butorides (striatus) virescens*, *Charadrius wilsonia*, *Sterna hirundo*, *Progne subis* have both resident and migrant populations from North America present in winter; *Sphyrapicus varius* and *Hylocichla mustelina* reach the southern end of their winter range in the Leeward Islands: Distribution; natural history; abundance: 0.

647. ___________. 1957. The birds of Aruba, Curaçao and Bonaire. Publ. Found. Sci. Res. in Surinam and the Netherlands Antilles 14: 1-260.

648. ___________. 1965. Check-list of the birds of Aruba, Curaçao, and Bonaire. Ardea 53: 205-234.

THE BAHAMAS

649. Allen, J. A. 1900. New birds from the Bahamas. Auk 17: 187.

650. Bangs, O. 1900. Notes on a collection of Bahama birds. Auk 17: 283-293.

651. Bonhote, J. L. 1899. A list of birds collected on the Island of New Providence, Bahamas. Ibis, Ser. 7, 5: 506-520.

652. ___________. 1902. Field notes on some Bahama birds. Aviculture Mag. Ser. 1, 8: 278-285.

653. ___________. 1903. Field notes on some Bahama birds. Aviculture Mag. Ser. 1, 9: 19-24; 54-62: 87-95.

654. ___________. 1903. On a collection of birds from the northern islands of the Bahama group. Ibis, Ser. 8, 3: 273-315.

655. Brudnell-Bruce, P. G. C. 1975. The birds of New Providence and the Bahamas. New York, Taplinger Publ. Co.

656. Bryant, H. 1865. A list of birds seen at the Bahamas from January 20th to May 14th, 1859 with descriptions of new or little known species. Proc. Boston Soc. Nat. Hist. 7: 102-134.

657. ___________. 1866. Additions to a list of birds seen at the Bahamas. Proc. Boston Nat. Hist. Soc. 11: 63-70.

658. Buden, D. W. 1974. Prey remains of Barn Owls in the southern Bahama Islands. Wilson Bull. 86: 336-343.

Middle Caicos, Bahama Islands: 29 Jan 1972: -------: Spec.: *Porzana carolina*: -------: 17.

659. ___________ & A. Schwartz. 1968. Reptiles and birds of the Cay Sal Bank, Bahama Islands, new data. Quarterly J. Florida Acad. Sci. 31: 290-320.

-------: 18-24 Apr 1968. Beach; sea oats; shrubs; palm scrub; mangrove: 63 species of nearctic migrants are noted: Distribution: 22.

660. Catesby, M. 1743. The natural history of Carolina, Florida and the Bahama Islands.

661. Chapman, F. M. 1908. Camps and cruises of an ornithologist. Part 4. Bahama birdlife. London, Hodder & Stoughton.

662. Clough, G. C. & G. Fulk. 1971. The vertebrate fauna and the vegetation of East Plana Cay, Bahama Islands. Atoll Res. Bull. 137-148: 1-17.

-------: 20-24 Mar 1966; 22-28 Oct 1967; 29 Mar-4 Apr 1968: Coral; beach; scrub: Obs.: *Ardea herodias*, *Butorides* (*striatus*) *virescens*, *Nyctanassa violacea*, *Pandion haliaetus* (breeding), *Haematopus palliatus*, *Charadrius wilsonia*, *Pluvialis squatarola*, *Arenaria interpres*, *Calidris alba*, *Coccyzus americanus*, *Megaceryle alcyon*, *Dumetella carolinensis*, *Parula americana*, *Dendroica petechia*, *D. caerulescens*, *D. coronata*, *D. striata*, *D. palmarum*, *Seiurus aurocapillus*, *Wilsonia citrina*, *Setophaga ruticilla*, *Ammodramus savannarum*: 37 total species recorded: Distribution: 6.

663. Cory, C. B. 1880. The birds of the Bahama Islands (containing many birds new to the Islands and a number of undescribed winter plumages of North American birds). Boston, Estes & Lauriat.

664. ___________. 1890. The birds of the Bahama Islands. (Revised ed.) Boston, Estes & Lauriat.

665. ___________. 1891. List of the birds collected by C. L. Winch in the Caicos Islands and Inagua, Bahamas, during January and February and in Abaco, in March 1891. Auk 8: 296-298.

666. ___________. 1891. On a collection of birds made on the islands of Anguilla and Cay Sal or Salt Cay, Bahama Islands, by Mr. Cyrus S. Winch, during May 1891. Auk 8: 352.
-------: -------: Low scrub; fresh water pond; palm; Spec.: *Arenaria interpres*, *Coccyzus americanus*, *Athene cunicularia* (breeding), *Hirundo rustica*, *Dendroica caerulescens*, *D. striata*, *Seiurus noveboracensis*, *Oporornis agilis*, *Geothlypis trichas*, *Setophaga ruticilla*, *Dolichonyx oryzivorus*, *Agelaius phoeniceus* (breeding): Distribution: 0.

667. ___________. 1892. A list of birds taken on Maraguana, Watling's Island, and Inagua, Bahamas, during July, August, September, and October, 1891. Auk 9: 48-49.

668. Gillis, W. T., R. Byrne & W. Harrison. 1975. Bibliography of the natural history of the Bahama Islands. Atoll Res. Bull. 191.
-------: -------: -------: Lit.: 83 ornithological works on the Bahamas are cited: About 1,760 references.

669. Jennings, A. H. 1888. List of birds observed at New Providence, Bahama Islands, March-June, 1887. Johns Hopkins Univ. Circ. 7(63): 39.

670. Mason, C. R. 1973. Field check-list of the birds of the Bahama Islands. Kissimmee, Florida, Flying Carpet Tours.

671. Maynard, C. J. 1884. Catalogue of Bahama birds, skins, nests, and eggs. Privately printed.

672. Mayr, E. 1953. Additional notes on the birds of Bimini, Bahamas. Auk 70: 499-501.
-------: 28 Mar-18 Apr 1952: -------: Obs.: *Butorides (striatus) virescens*, *Egretta thula*, *Accipiter striatus*, *Circus cyaneus*, *Falco sparverius*, *F. columbarius*, *Bartramia longicauda*, *Larus atricilla*, *Sterna maxima*, *Coccyzus americanus*, *Chordeiles minor*, *Megaceryle alcyon*, *Tyrannus tyrannus*, *Hirundo rustica*, *Protonotaria citrea*, *Dendroica striata*, *D. tigrina*, *D. palmarum*, *D. discolor*, *Wilsonia citrina*, *Passerina cyanea*, *Passerculus sandwichensis*: 91 species had been recorded for Bimini as of 1953: Distribution; migration; some ecological notes: 1.

673. Miller, J. R. 1978. Notes on birds of San Salvador Island (Watlings), the Bahamas. Auk 95: 281-287.
-------: 26 Nov-21 Dec 1973; 26 Nov-19 Dec 1974; 12 Jan-14 Jun 1975; 19 Nov-15 Dec 1975; 21 Nov-15 Dec 1976: Scrub-coppice: 132 species recorded from the island; 39 permanent residents including *Pandion haliaetus*, *Falco sparverius*, *Charadrius vociferus*, *Sterna albifrons*, *Dendroica petechia*; 45 winter residents; 8 regular transients; 31 vagrants: Distribution: 16.

674. Northrop, J. I. 1891. The birds of Andros Island, Bahamas. Auk 8: 64-80.

675. Paterson, A. 1972. Birds of the Bahamas. Brattleboro, Vermont, Durrell Publ.

676. Paulson, D. R. 1966. New records of birds from the Bahama Islands. Acad. Nat. Sci. Philadelphia Not. Nat. 394: 1-15.
-------: 17 Nov 1963-18 Apr 1964: -------: Spec.; Obs.: 56 species recorded including 37 nearctic migrants: Distribution: 18.

677. Ridgway, R. 1891. List of birds collected on the Bahama Islands by naturalists of the Fish Commission steamer "Albatross." Auk 8: 333-339.

678. Riley, J. H. 1905. Birds of the Bahama Islands. Pp. 347-368 in The Bahama Islands (G. B. Shattuck, ed.). Baltimore, Johns Hopkins Press.

679. Vaurie, C. 1953. Observations and new records of birds from the Biminis, northwestern Bahamas. Auk 70: 38-48.
-------: 8 Jun-24 Aug 1951: Scrub; mangrove; lagoon; beach: Obs.; lit: 79 species recorded including 60 nearctic migrants: Distribution; ecology; reproduction: 6.

CUBA

Includes Isle of Pines

680. Aguayo, C. G. 1937. [Concerning some birds recorded in Cuba]. Mem. Soc. Cubana Hist. Nat. 11: 60.

681. Bangs, O. & W. R. Zappey. 1905. Birds of the Isle of Pines. Amer. Nat. 39: 179-215.
-------: Mar 1902; "spring and early summer" 1904: Cultivation; scrub; thorn forest; mangrove; palmetto: Spec.; Obs.: 120 species are recorded, 56 species of nearctic migrants many of which have breeding populations on on the island or nearby mainland: Distribution: 4.

682. Barbour, T. 1923. The birds of Cuba. Mem. Nuttall Ornith. Club. Cambridge, Massachusetts.

683. Bruner, S. C. 1941. [Notes on two Cuban birds]. Mem. Soc. Cubana Hist. Nat. "Felipe Poey" 15: 157-159.

684. Chapman, F. M. 1892. Notes on birds and mammals observed near Trinidad, Cuba, with remarks on the origin of West Indian bird-life. Bull. Amer. Mus. Nat. Hist. 4:279-330.

685. Cory, C. B. 1891. A list of birds taken and observed in Cuba and the Bahama Islands, during March and April 1891. Auk 8: 292-296.

686. Dathe, H. & W. Fischer. 1969. Noteworthy observations in Cuba in the spring of 1968. J. Ornith. 110: 111-112.
Santiago de Cuba; Havanna, Cuba: Feb-Mar 1968: -------: Obs.: Elanoides forficatus, Larus philadelphia, Dumetella carolinensis, Protonotaria citrea, Vermivora peregrina, Icterus galbula: Distribution: 0.

687. ___________ & ___________. 1979. Contributions to the ornithology of Cuba. Beitr. Vogelkd. 25: 171-203.
-------: -------: -------: Obs.; Spec.: 92 species recorded including 63 nearctic migrants: Distribution: 0.

688. García Montaña F. & O. H. Garrido. 1965. [New breeding records of birds in Cuba]. Poeyana, Ser. A, 9: 1-3.

689. Garrido, O. H. 1973. [Amphibians, reptiles and birds of the Sabana-Camaguey, Archipelago, Cuba]. Torreia 27 (Nov. Ser.): 3-72.
-------: 1963-1969: Mangrove; beach; palm forest: Spec.; obs.: 76 species of nearctic migrants are treated; 115 total avian species recorded: 0.

690. ___________. 1980. [Additions to the vertebrate fauna of Guanahacabibes Peninsula]. Misc. Zool. (Cuba) 10: 2-4.

691. ___________ & F. García Montaña. 1962. [Catalogue of the birds of Cuba]. Havana, Cuba, Acad. Cien. Cuba.

692. ___________ & ___________. 1965. [Catalogue of the birds of Cuba]. Cat. de la Fauna Cubana 13, mimeographed, Trab. de divulgacion No. 27, Mus. Felipe Poey, Acad. Cien. Cuba, Poeyana 67.

693. ___________ & ___________. 1968. New reports of birds for Cuba. Torreia (Nueva Ser.) 4: 1-13.
-------: -------: -------: Spec.: Branta canadensis, Catoptrophorus semipalmatus, Turdus migratorius, Hylocichla mustelina, Catharus ustulatus, C. fuscescens, C. minimus, Spizella passerina, S. pallida: Distribution: 12.

694. ___________ & H. Gonzalez. 1980. [New reports of birds for Cuba]. Misc. Zool. (Cuba) 9:4.

695. ___________ & A. Schwartz. 1968. Amphibians, reptiles and birds of the Guanahacabibes Peninsula, Cuba. Poeyana Inst. Biol. Habana Ser. A 53: 1-68.

696. ___________ & ___________. 1969. Amphibians, reptiles and birds of Cantiles Cay, Cuba. Systematic List. Poeyana Inst. Biol. Habana Ser. A 67: 1-44.
-------: 29 Jul 1958: 27-31 Jul 1959; "spring" 1962; 25 Apr 1966; 9-15 Apr 1967: Dense, dry forest; mangrove; lagoon; beach; ocean; fresh water ponds: Obs. spec.: 31 species of nearactic migrants recorded: Distribution; abundance: 6.

697. Gundlach, J. 1876. [Contribution to Cuban ornithology]. Imp. La Antilla, Habana.

698. Poey, F. 1854. [Notes on the natural history of Cuba].

699. Ripley, S. D. & G. E. Watson. 1956. Cuban bird notes. Postilla, Yale Peabody Mus. Nat. Hist. 26: 1-6.
-------: 6 Aug-12 Dec 1955: -------: Spec.; obs.: 27 species recorded including *Podilymbus podiceps*, *Bubulcus ibis*, *Aix sponsa*, *Buteogallus anthracinus*, *Grus canadensis*, *Porzana carolina*, *Porphyrula martinica*, *Chlidonias niger*, *Coccyzus americanus*, *Riparia riparia*, *Dendroica pensylvanica*: Distribution; some ecology: 2.

700. Varona, L. S. & O. H. Garrido. 1970. Vertebrates of Cayos de San Felipe, Cuba, including a new species of Jutia. Poeyana Inst. Biol. Habana Ser. A, 75: 1-26.
-------: Feb 1970: -------: Spec.; obs.: 34 species recorded including 25 nearctic migrants: Distribution: 3.

HISPANIOLA

Includes Haiti and the Dominican Republic

701. Beebe, W. 1927. Notes on the birds of Haiti. Zool. Soc. Bull. 30: 130-141.

702. ____________. 1928. List of Haitian birds observed. Appendix D *in* Beneath tropic seas.

703. Bond, J. 1928. The distribution and habits of the birds of the Republic of Haiti. Proc. Acad. Nat. Sci. Philadelphia 80: 483-521.

704. Cory, C. B. 1881. List of the birds of Haiti, taken in different parts of the island between January 1, and March 12, 1881. Bull. Nuttall Ornith. Club 6: 151-155.

705. ____________. 1884-1885. The birds of Haiti and San Domingo. Boston.

706. Danforth, S. T. 1929. Notes on the birds of Hispaniola. Auk 46: 358-375.
-------: 14 Jun-10 Aug 1927: -------: Spec.; obs.: 120 species recorded, 49 nearctic migrants most with breeding populations on the island, including *Accipiter striatus*, *Charadrius vociferus*, *Vireo olivaceus*, and *Dendroica pinus*: Abundance; distribution; foods: 0.

707. Hundley, M. H. & C. R. Mason. 1961. Field check-list of the birds of Hispaniola. Maitland, Florida, Florida Aud. Soc.

708. Peters, J. L. 1917. Birds from the northern coast of the Dominican Republic. Bull. Mus. Comp. Zool. 61: 391-426.

709. Sallé, A. 1857. [List of birds observed and reported in the Dominican Republic (formerly the Spanish portion of the island San Domingo or Haiti) during his travels from 1849 to 1851]. Proc. Zool. Soc. London 230-237.

710. Schwartz, A. 1969-1970. Land birds of Isla Saona, Dominican Republic. Quarterly J. Florida Acad. Sci. 32: 291-306.
-------: 28-31 Dec 1968: Mangrove; coconut plantation; broadleaf forest: Spec.; obs.: 26 species recorded including *Bubulcus ibis*, *Falco sparverius*, *Buteo jamaicensis*, *Zenaida macroura*, *Tyrannus dominicensis*, *Parula americana*, *Dendroica coronata*, *D. discolor*: Distribution: 6.

711. Wetmore, A. 1929. Descriptions of four new forms of birds from Haiti. Smithsonian Misc. Coll. 81(13): 1-4.

712. ____________ & F. C. Lincoln. 1933. Additional notes on the birds of Haiti and the Dominican Republic. Proc. U. S. Natl. Mus. Washington 82: 1-68.

713. ____________ & B. H. Swales. 1931. The birds of Haiti and the Dominican Republic. Bull. U. S. Natl. Mus. Washington 155.
-------: -------: Evergreen hardwoods; pine; thorn forest; savannah; deciduous forest; littoral woodland: 215 species are recorded, 65 of which are considered to be migrants from North America; *Butorides (striatus) virescens*, *Nycticorax nycticorax*, *Fulica americana*, *Charadrius vociferus*, *Coccyzus americanus*, *Chordeiles minor*, *Vireo olivaceus* occur as both resident and migrant forms: Distribution; natural history: 129.

JAMAICA

714. Bangs, O. & F. H. Kennard. 1920. A list of the birds of Jamaica. *in* The handbook of Jamaica.

715. Black, C. 1972. Migrant dates. Broadsheet 19 (Gosse Bird Club).

716. ____________. 1972. Migrant dates. Broadsheet 21 (Gosse Bird Club).

717. Cruz, A. 1972. Birds of the Lluidas Vale (Worthy Park) Region, Jamaica. Quarterly J. Florida Acad. Sci. 35: 72-80.
-------: 14 Jun-17 Aug; 20-26 Dec 1969; 14 Apr-24 May; 15 Jun-15 Jul 1970: 4-24 Jun 1971: Wet limestone forest: Obs.: 87 species recorded including 36 nearctic migrants, 15 of which breed in Jamaica; *Porphyrula martinica* apparently occurs as both a winter and a permanent resident: Abundance; distribution: 4.

718. Danforth, S. T. 1928. Birds observed in Jamaica during the summer of 1926. Auk 45: 480-491.

719. Diamond, A. W. 1972. Transients and scarce winter visitors trapped in Jamaica in 1970-1971. Broadsheet 18: 11 (Gosse Bird Club).

720. Field, G. W. 1894. Notes on the birds of Port Henderson, Jamaica, West Indies. Auk 11: 117-127.

721. Gosse, P. H. 1847. The birds of Jamaica. London. van Doorst.

722. Hundley, M. H. & C. R. Mason. 1961. Field check-list of the birds of Jamaica. Maitland, Florida, Florida Aud. Soc.

723. Jeffery-Smith, M. 1956. Bird watching in Jamaica. Kingston, Jamaica, Pioneer Press.

724. Kidd, E. R. G. 1964. Hillbirds at low altitudes at Mona Reservoir. Broadsheet 2: 9 (Gosse Bird Club).

725. Lack, D., E. Lack, P. Lack & A. Lack. 1972. Transients in Jamaica, 1970-1971. Broadsheet 18: 1-5 (Gosse Bird Club).

726. March, W. T. & S. F. Baird. 1863. Notes on the birds of Jamaica. Proc. Acad. Nat. Sci. Philadelphia, 150-154, 283-305.

727. Osburn, W. 1859. Notes on the birds of Jamaica. Zoologist: 6368-6373.

728. ____________. 1859-1860. Notes on the mountain birds of Jamaica. Zoologist (1859) 6658-6665, 6709-6721; (1860) 6833-6841, 6873-6880, 6925-6934.

729. Sclater, P. L. 1910. Revised list of the birds of Jamaica. *in* Handbook for Jamaica.

730. Scott, W. E. D. 1891-1893. Observations on the birds of Jamaica, West Indies. Auk 8: 249-256, 353-365; 9: 9-15, 120-129, 273-277, 369-375; 10: 177-181, 339-342.

731. Taylor, R. G. 1955. Introduction to birds in Jamaica. London, MacMillan & Co.

732. Tordoff, H. B. 1952. Notes on birds of Jamaica. Auk 69: 320-322.

733. Ventura, A. K. 1969. Birds of Caymanas Estates, Jamaica - their collection and habits. Carib. J. Sci. 9: 39-52.

-------: Nov 1961 - Sep 1962: Scrub; savannah; thorn woodland; mangrove; mango orchard: Spec.: 25 species documented including *Nyctanassa violacea*, *Florida caerulea*, *Himantopus mexicanus*, *Mniotilta varia*, *Helmitheros vermivorus*, *Dendroica caerulescens*, *Seiurus aurocapillus*, *Geothlypis trichas*, *Setophaga ruticilla*: Distribution: 6.

LESSER ANTILLES

734. Beatty, H. A. 1930. Birds of St. Croix. J. Dept. Agric. Puerto Rico 24: 134-150.

735. ___________. 1936. New bird records for St. Croix, V. I. Auk 53: 456-457.
-------: 1933-1936: -------: Spec.; obs.: *Haematopus palliatus*, *Calidris fusicollis*, *Gelochelidon nilotica*, *Chordeiles minor*, *Dendroica coronata*: Distribution: 0.

736. ___________. 1938. Notes from St. Thomas and Cays, Virgin Islands. Auk 55: 552-553.
-------: 19 Apr 1936: -------: Spec.; obs.: *Pelecanus occidentalis*, *Ardea herodias*, *Egretta thula*, *Florida caerulea*, *Fulica* sp., *Tringa melanoleuca*, *T. flavipes*, *Catoptrophorus semipalmatus*, *Himantopus mexicanus*, *Progne subis*, *Dendroica petechia*: Distribution: 0.

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St. Croix: 22 May 1943: Lagoon: Spec.: *Hydranassa tricolor*: Distribution: 0.

739. Bond, J. 1928. On the birds of Dominica, St. Lucia, St. Vincent and Barbados, B. W. I. Proc. Acad. Nat. Sci. Philadelphia 80: 523-545.

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743. Christy, C. 1897. Field notes on the birds of the Island of San Domingo. Ibis, July 1897: 317-343.

744. Clark, A. H. 1905. Birds of the southern Lesser Antilles. Proc. Boston Soc. Nat. Hist. 32: 203-312.

745. Cory, C. B. 1891. A collection of birds taken by Cyrus S. Winch in the islands of Anguilla, Antigua and St. Eustatious, West Indies, during April, May, June and a part of July, 1890. Auk 8: 46-47.

746. ___________. 1892. A list of the birds collected in the islands of St. Croix and St. Kitts, West Indies, during March and April, and in Guadeloupe during August, September, and October, 1890. Auk 9: 47-49.

747. ___________. 1909. The birds of the Leeward Islands, Caribbean Sea. Field Mus. Nat. Hist. Publ. Ornith. 1: 192-255.

748. Danforth, S. T. 1930. Bird records from the Virgin Islands. J. Dept. Agric. Porto Rico 14: 107-133.

749. ____________. 1930. Notes on the birds of St. Martin and St. Eustatius. Auk 47: 44-47.
-------: 21-28 Dec 1927. Xerophytic brush; salt ponds; forest: Spec.; obs.: 23 of 38 species discussed are nearctic migrants: 0.

750. ____________. 1934. The birds of Antigua. Auk 51: 350-364.
-------: 26 Jul-17 Aug 1933: Xerophytic forest; mesophytic forest; agriculture; mangrove; mud flats; lagoons: Spec.; obs.: 81 species recorded; 22 species of nearctic migrants have resident populations including *Buteo platypterus*; 26 species occur only as migrants from North America: Distribution; foods: 0.

751. ____________. 1935. The birds of Saint Lucia. Monogr. Univ. Puerto Rico. Phys. Biol. Sci., Ser. B, 3.

752. ____________. 1935. The birds of Barbuda, etc. J. Dept. Agric. Puerto Rico 19: 473-482.

753. ____________. 1935. Supplementary account of the birds of the Virgin Islands, including Culebra and adjacent islets pertaining to Puerto Rico, with notes on their food habits. J. Dept. Agric. Puerto Rico 19: 439-472.

754. ____________. 1936. The birds of St. Kitts and Nevis. Trop. Agric. 13: 213-217.
-------: 23, 24 Jul 1922; 5 Jan; 1-12 Aug 1931; 25 Jul 1933; 20-29 Jun 1935: -------: Spec.; obs.: 63 species recorded; 18 species of resident nearctic migrants; 15 species of strictly migratory birds: Distribution; foods: 4.

755. ____________. 1938. The birds of Saba. J. Dept. Agric. Puerto Rico 22: 503-512.

756. ____________. 1938. Observations on some Barbudian birds. J. Barbados Mus. Hist. Soc. 5: 119-129.

757. ____________. 1939. The birds of Guadeloupe and adjacent islands. J. Dept. Agric. Puerto Rico 23: 9-46.
-------: 29 Dec 1930; 18 Jun 1931; 10 Jun-26 Jul 1937: Rain forest; savannah; agriculture; semi-xerophytic scrub; mangrove: Spec.; obs.; lit.: 91 forms are reported 46 of which are nearctic migrants: Distribution: 10.

758. ____________.. 1939. The birds of Montserrat. J. Dept. Agric. Puerto Rico. 23: 47-66.
-------: 22 Jul 1922; 31 Jul 1931; 30 Jun; 13 Aug 1935; 6-20 Feb 1937: Rain forest; mangrove; thorn forest: Spec.; obs.: 58 species recorded; 16 species of nearctic migrants are resident; 18 species are migrants; *Ardea herodias* has both resident and migrant populations on the island: Distribution; food habits: 7.

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762. Grisdale, T. 1882. Birds of Montserrat. Ibis 6(4): 485-493.

763. Guth, R. W. 1971. New bird records from Guadeloupe and its dependencies. Auk 88: 180-182.
-------: 14 Sept-15 Dec 1969: -------: Obs.: Actitis macularia, Pluvialis dominica, Himantopus mexicanus, Coccyzus americanus, Megaceryle alcyon, Hirundo rustica, Riparia riparia, Dendroica caerulescens, Geothlypis trichas: Distribution: 8.

764. Holland, C. S. & J. M. Williams. 1978. Observations on birds of Antigua. Amer. Birds 32: 1095-1105.

765. Hoogerwerfe, A. 1977. Notes on the birds of St. Martin, Saba and St. Euststius. Studies on the Fauna of Curacao and other Carib. Isl. 176: 60-123.

766. Kruythoff, S. J. 1939. The Netherlands Windward Islands. Antigua. 2nd ed. (birds: Pp. 51-57).

767.

768. LaBastille, A. & M. Richmond. 1973. Birds and mammals of Anegada Island, British Virgin Islands. Carib. J. Sci. 13: 91-110.

769. Lack, D. & A. Lack. 1973. Birds on Grenada. Ibis 115: 53-59.
-------: 18-20 Mar; 1-9 Aug 1971: Agriculture; scrub forest; rain forest: Obs.: 60 species recorded of which 24 are nearctic migrants: Distribution; habitat: 10.

770. ___________, E. Lack, P. Lack & A. Lack. 1973. Birds on St. Vincent. Ibis 115: 46-52.
-------: 13-17 Mar; 5-22 Jul 1971: Semi-arid woodland; garden; lowland forest; secondary forest; high rain forest: Obs.: 40 species recorded including Butorides (striatus) virescens, Florida caerulea, Buteo platypterus, Actitis macularia, Tringa melanoleuca, Progne subis, Hirundo rustica, Troglodytes aedon, Dendroica tigrina: Distribution: 10.

771. Lawrence, G. N. 1878. Catalogue of the birds of St. Vincent. Proc. U. S. Natl. Mus. 185-198.

772. ___________. 1878. Catalogue of a collection of birds obtained in Guadeloupe for the Smithsonian Institution by Mr. Fred A. Ober. Proc. U. S. Natl. Mus. 449-462.

773. Leck, C. F. 197 . Notes on unusual and rare birds of St. Croix. Condor 77: 107.
-------: Several summer and winter dates, 1970-1973: -------: Obs.: *Egretta thula*, *Nycticorax nycticorax*, *Pandion haliaetus*, *Falco peregrinus*, *Tringa solitaria*, *Calidris fuscicollis*, *Micropalama himantopus*, *Calidris alba*, *Gelochelidon nilotica*, *Sterna dougallii*, *S. sandvicensis*, *Hirundo rustica*, *Protonotaria citrea*, *Seiurus motacilla*: Distribution: 0.

774. Lister, C. E. 1880. Field notes on the birds of St. Vincent, West Indies. Ibis Ser. 4(4): 38-44.

775. Mirecki, D. N. 1976. Report of the Cambridge expedition to the British Virgin Islands. Churchill College, Cambridge United Kingdom. (Available from Island Resources Foundation, P. O. Box 4181, St. Thomas, U. S. Virgin Islands).

776. Nellis, D. W. 1979. Record of Puerto Rican Screech Owl, Turkey Vulture, and Osprey from St. Croix, U. S. Virgin Islands. Wilson Bull. 91: 148-149.

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778. ___________ & E. Newton. 1859. Observations on the birds of St. Croix, West Indies, etc. Ibis 1: 59-69, 138-150, 252-264, 365-379.

779. Nichols, A. & J. Bond. 1943. The breeding birds of St. Thomas and St. John, Virgin Islands. Mem. Soc. Cubana Hist. Nat. 17: 23-37.
-------: -------: -------: Spec.; obs.: 63 species recorded of which 27 are nearctic migrants: Distribution; reproduction: 2.

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-------: 3-6 Oct 1976; 29 Dec 1977-17 Apr 1978: -------: Obs.: Notes on 17 nearctic migrants: Distribution: 9.

781. Peters, J. L. 1927. Birds of the island of Anguilla, West Indies. Auk 44: 532-538.

782. Philibosian, R. & J. A. Yntema. 1977. Annotated check-list of the birds, mammals, reptiles and amphibians of the Virgin Islands and Puerto Rico. Information Service, Frederiksted, St. Croix, U. S. V. I.

783. Pinchon, Pére R. 1961. [Second supplementary note on the birds of the French Antilles]. L'Oiseau et R. F. O. 31: 85-99.

784. ___________. 1963. [The birds of the French Antilles]. Port de France, Martinique, Mus. Natl. Hist. Nat.

785. Riley, J. H. 1904. Catalogue of a collection of birds from Barbuda and Antigua, British West Indies. Smithsonian Misc. Coll. 47: 277-291.

786. Robertson, W. B., Jr. 1962. Observations on the birds of St. John, Virgin Islands. Auk 79: 44-76.
-------: 10 Feb-15 Mar 1957: Moist forest; dry forest; cactus; mangrove; *Croton*-*Acacia* scrub: 84 species recorded 52 of which are nearctic migrants; *Coccyzus americanus* may occur as both a breeding and transient species: Distribution; zoogeography: 58.

787. Sclater, P. L. 1879. Mr. P. L. Sclater on birds from Montserrat. Proc. Zool. Soc. London, 764-765.

788. Seaman, G. A. 1957. New bird records for Barbuda, British West Indies. Wilson Bull. 69: 109-110.
-------: 29 Oct-4 Nov 1955: -------: Spec.; obs.: *Anas crecca*, *Porzana carolina*, *Pluvialis squatarola*, *Charadrius vociferus*, *Coccyzus erythropthalmus*, *Riparia riparia*, *Hirundo rustica*, *Progne* (*subis*) *dominicensis*: Distribution: 1.

789. ____________. 1958. Check-list of the birds of the American Virgin Islands. Christiansted, St. Croix, Virgin Islands.
-------: -------: -------: -------: 136 species recorded including 91 nearctic migrants: Distribution: 0.

790. Semper, J. E. 1872. Observations on the birds of St. Lucia, with notes by P. L. Sclater. Proc. Zool. Soc. London, 647-653.

791. Voous, K. H. 1955. The birds of St. Martin, Saba and St. Eustatius. Publ. Found. Sci. Res. in Surinam and the Netherlands Antilles 12: 1-82.

792. ____________ & H. J. Koelers. 1967. Check-list of the birds of St. Martin, Saba and St. Euststius. Ardea 55: 115-137.

793. Wells, J. G. 1887. A catalogue of birds of Grenada, West Indies, with observations theron. Edited by George N. Lawrence. Proc. U. S. Natl. Mus. 9: 609-633.

PUERTO RICO

Includes Vieques Island & Mona Island

794. Barnes, V., Jr. 1936. New records for the Puerto Rican avifauna. Auk 53: 350-351.
Guanica Saline, Puerto Rico: 16 Jun, 12 Dec, 28 Dec, 1935: Spec.: *Plegadis falcinellus*, *Anas rubripes*, *A. discors*, *Zenaida macroura*: Distribution: 0.

795. ____________. 1946. The birds of Mona Island, Puerto Rico. Auk 63: 318-327.
-------: Sep 1943 - Jun 1945: Xerophytic shrub forest, *Casuarina* stands: Spec.; obs.; lit.: 52 species recorded for the island, 32 of which are nearctic migrants; 5 of these migrants breed in the region: Distribution; abundance: 1.

796. ___________. 1947. Additions to the Puerto Rican avifauna with notes on little-known species. Auk 64: 400-406.

797. Beatty, H. A. 1931. Notes on birds observed at Guanica Lagoon, Puerto Rico. Dept. Agric., P. R., 15: 19-32.

798 Biaggi, V., Jr. 1960. Birds of Puerto Rico, Field Check-list, English ed., Mayaguez, P. R., u.d.

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800. ___________. 1970. [The birds of Puerto Rico]. San Juan, Universidad de Puerto Rico.

801. ___________ & F. J. Rolle. 1961. Records of two migrant waterfowl for Puerto Rico. Auk 78: 425.
Fuertes swamp, Loiza Aldea; Boqueron, Puerto Rico: 21 Dec 1960; 17 Dec 1960: -------: Spec.: *Dendrocygna bicolor*, *Lophodytes cucullatus*: Distribution: 1.

802. Bond, J. 1956. The birds of Mona Island. Acad. Nat. Sci. Philadelphia. Not. Nat. 176: 1-10.

803. Bowdish, B. S. 1900. Some winter birds of the island of Vieques. Oologist, 17: 71-74.

804. ___________. 1902-1903. Birds of Puerto Rico. Auk 19: 356-366; Auk 20: 10-23.
-------: 22 Feb 1899 - 16 Feb 1900; 5 May 1900 - 24 Oct 1901; -------: Spec.; obs.: 91 species are recorded, 42 of which are nearctic migrants; many of the migrants have breeding populations in Puerto Rico: Distribution; abundance: 7.

805. Bryant, H. 1866. A list of birds from Puerto Rico presented to the Smithsonian Institution by Messrs. Robert Swift and George Latimer, with descriptions of new species or varieties. Proc. Boston Soc. Nat. Hist. 10: 248-257.

806. Buckley, P. A. & F. G. Buckley. 1970. Notes on the distribution of some Puerto Rican birds and on the courtship behavior of white-tailed Tropicbirds. Condor 72: 483-486.
-------: 18-28 Jan 1969: -------: Obs.: *Micropalama himantopus*, *Larus delawarensis*, *L. pipixcan*, *Gelochelidon nilotica*, *Sterna forsteri*, *S.* (*sandvicensis*) *eurygnatha*, *S. caspia*: Distribution: some behavior: 20.

807. Cory, C. B. 1892. Remarks on a collection of birds made by Wilmot W. Brown, Jr., on Mona and Puerto Rico during February and part of March, 1892. Auk 9: 228-229.

808. Danforth, S. T. 1923. Birds seen during a winter in Puerto Rico. Oologist 40:

809. __________. 1926. Birds of the Cartagena Lagoon, Puerto Rico. J. Dept. Agric. Puerto Rico, 10 (for 1925): 1-136.

810. __________. 1931. Puerto Rican Ornithological Records. J. Dept. Agric. Puerto Rico, 15: 33-107.

811. __________. 1936. [The birds of Puerto Rico]. New York, Rand, McNally & Co.

812. __________. 1936. New records for Mona Island, West Indies. Auk 53: 100.
--------: 14-16 Apr 1935: -------: Spec.; obs.: *Falco peregrinus*, *F. sparverius*, *Arenaria interpres*: Distribution: 0.

813. __________. 1937. Ornithological investigations in Vieques Island, Puerto Rico, during December, 1935. J. Dept. Agric., Puerto Rico, 21: 539-550.
-------: 23 Dec 1935 - 1 Jan 1936: Sugar cane, xerophytic scrub, mangrove, lagoon: Spec.; obs.: 54 species recorded; 16 species of nearctic migrants have resident populations, 17 species occur only as migrants, *Charadrius vociferus* had both resident and migratory populations on the island: Distribution, food habits: 0.

814. Grayce, R. L. 1957. Range extensions in Puerto Rico. Auk 75: 106.
Cabo San Juan Lighthouse, Puerto Rico: 2 Jan 1955; lagoon; beach: Obs.: *Himantopus mexicanus*, *Gelochelidon nilotica*, *Sterna maxima*: Distribution: 1.

815. Gundlach, J. 1874. [Contribution to the ornithology of Puerto Rico]. J. Ornith. 1874: 304-315.

816. __________. 1878. [Notes on the fauna of Puerto Rico]. Anal. Soc. Esp. Hist. Nat., 7: 135-422. Aves, pp. 141-422.

817. __________. 1878. [New contribution to the ornithology of Puerto Rico]. J. Ornith. 1878: 157-194.

818. Haydon, R. N. 1950. Birds in Puerto Rico, Imprenta Soltero, San Juan, P. R.

819. Heatwole, H., L. Kelts, R. Levins & F. Torres. 1973. Faunal notes on Culebra Island, Puerto Rico. Carib. J. Sci. 3: 29-30.

820. Kepler, C. B. 1978. The breeding ecology of sea birds on Monito Island, Puerto Rico. Condor 80: 72-87.

821. __________ & A. K. Kepler. 1977. The sea birds of Culebra and its adjacent islands Puerto Rico. Living Bird 16: 21-50.
-------: 1-3 Oct 1968; 3 Aug 1970; 4 Jan-20 Jun 1971: Obs.: *Larus atricilla*, *Sterna hirundo*, *S. maxima*, *S. sandvicensis*: Census of breeding colonies - 87,000 prs. of 10 species: 33.

822. Leopold, N. F., Jr. 1963. Checklist of birds of Puerto Rico and the Virgin Islands. University of Puerto Rico Agricultural Experimental Station, Bull. 168.
-------: -------: -------: Spec., obs., lit.: Of 209 species 41 nearctic migrants breed in the region; 84 occur as transients or winter residents; *Pelecanus occidentalis*, *Ardea herodias*, *Butorides* (*straitus*) *virescens*, *Charadrius vociferus*, *Catoptrophorus semipalmatus*, *Sterna hirundo*, *S. maxima* and *Chordeiles minor* have both resident and transient populations: Abundance; distribution; nomenclature: 45.

823. McCandless, J. B. 1956. Check-list of the birds of Puerto Rico, Mayaguez, P. R.

824. ___________. 1958. A field guide to the birds of Puerto Rico. San German, Puerto Rico, Inter-American University Press.

825. ___________. 1961. Bird life in southwestern Puerto Rico I. Fall Migration. Carib. J. Sci. 1: 3-12.
-------: 1950-1960: -------: Obs.: Notes on transient and winter resident nearctic migrants mostly Anatidae, Chardriiformes and Parulidae: Distribution; abundance; timing of movements: 4.

826. ___________. 1961. Field check-list of the birds of Puerto Rico. Maitland, Florida: Florida Audubon Society.

827. Raffaele, H. 1973. Assessment of Mona Island avifauna. In Las Islas de Mona y Monito: Una Evaluacion de sus Recursos Naturales e Historicos. San Juan: Environmental Quality Board, Commonwealth of Puerto Rico.
-------: -------: -------: Lit.: 97 species are recorded of which 68 are nearctic migrants: Severe problems facing seabird colonies due to human disturbance are discussed: 0.

828. Recher, H. F. & J. T. Recher. 1966. A contribution to the knowledge of the avifauna of the Sierra de Luquillo, Puerto Rico. Carib. J. Sci. 6: 151-160.
-------: 17 Mar-14 Apr; 11-18 Aug; 1-15 Dec 1964; 21 May-28 Apr 1965; 17-27 May 1966; "Montane rainforest grading into agricultural land...": Obs.: 39 species recorded including - *Accipiter striatus*, *Buteo jamaicensis*, *B. platypterus*, *Tyrannus dominicensis*, *Hirundo rustica*, *Petrochelidon fulva*, *Mniotilta varia*, *Parula americana*, *Dendroica tigrina*, *D. caerulescens*, *Seiurus motacilla*, *Setophaga ruticilla*: Distribution: 10.

829. ___________ & ___________. 1970. A contribution to the knowledge of the avifauna of the Sierra de Luquillo. Puerto Rico, in "A Tropical Rain Forest," (H. T. Odum, ed.). U. S. Atomic Energy Commission, Oak Ridge, pp. E86-E93.

830. Rolle, F. J. 1961. Notes and records of little known species of birds from Puerto Rico. J. Agric. Univ. Puerto Rico XLV (4): 333-341.

831. Sorrie, B. A. 1975. Observations of the birds of Vieques Island, Puerto Rico. Carib. J. Sci. 15: 89-103.
-------: 11 Nov 1969 - 1 Aug 1971: scrub; dry limestone forest; moist coastal forest; mangrove: Obs.: 107 species recorded including 69 nearctic migrants: Changes in abundance and distribution; map; status: 21.

832. Stahl, A. 1883. Fauna of Puerto-Rico, San Juan, P. R.

833. Struthers, P. H. 1923. Observations on the bird life of Puerto Rico. Auk 40: 469-478.

834. ____________. 1927. Notes on the bird-life of Mona and Desecheo Island. Auk 44: 539-544.

835. Sundevall, C. J. 1870. Foglarna pa on Portorico... Oefvers. Konigl. Vetensk. Akad. Forhandl. for är 1869 (1870?), pp. 593-604.

836. Wetmore, A. 1916. Birds of Puerto Rico. U. S. Dept. Agr. Bull. 326: 1-140.

837. ____________. 1916. The birds of Vieques Island, Porto Rico. Auk 33: 403-419.
-------: Mar - Apr 1912: -------: Spec.; obs.: 65 species recorded including 35 nearctic migrants: Distribution: 9.

838. ____________. 1917. The birds of Culebra Island, Porto Rico. Auk 34: 51-62.

839. ____________ 1927. The birds of Porto Rico and the Virgin Islands. Parts 3 and 4 in volume 9 in Scientific Survey of Porto Rico and the Virgin Islands. New York: New York Academy of Sciences.

TRINIDAD-TOBAGO

840. Belcher, C. F. & G. D. Smooker. 1934-37. On the birds of the colony of Trinidad and Tobago. Ibis 4: 572-595, 5: 279-297, 6: 1-35, 792-813; 1: 249-255, 504-550.

841. Bond, J. 1970. Native and winter resident birds of Tobago. Livingston Publ. Co.

842. Brewster, S. & F. M. Chapman. 1895. Notes on birds observed in Trinidad. Auk 12: 201-211.

843. Chapman, F. M. 1894. The birds of the island of Trinidad. Bull. Am. Mus. Nat. Hist. 6: 1-86.

844. ____________. 1895. Further notes on Trinidad birds, with a description of a new species of Synnallaxis. Bull. Am. Mus. Nat. Hist. 7: 321-326.

845. Cherrie, G. K. 1906. A collection of birds from Aripo. Trinidad. Brooklyn Inst. Bull. 1,8: 188-191.

846. ____________. 1908. Further notes on a collection of birds from Trinidad. Brooklyn Inst. Bull., 1,13: 353-370.

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South America and adjacent islands: 1831-1836: -------: Spec., obs.: *Cathartes aura*, *Rynchops niger*, *Troglodytes aedon*, *Molothrus ater*: Comments on general natural history: 20.

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"Coastal strip," Punta Rasa to Mar Del Plata, Buenos Aires Prov., Argentina: Jul 1973-Dec 1974: Dunes; beach; mudflat; marsh; flooded fields; grassland: 25 spp. of nearctic migrants recorded of which Haematopus palliatus, Himantopus mexicanus, Capella gallinago breed locally: "Intra- and inter- specific patterns of aggression suggest both that resources are limiting and that nonbreeding migrants may play an important role in determining breeding community composition": Community ecology; habitat use: 28.

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-------: 1934-1938 (mostly): -------: Spec.: *Tyrannus tyrannus*, *Pyrocephalus rubinus*, *Contopus richardsonii*, *Cistothorus platensis*, *Troglodytes aedon*, *Progne* (*subis*) *chalybea*, *Riparia riparia*, *Hirundo rustica*, *Vireo olivaceus* , *V. o. chivi*, *V. o. flavoviridis*, *V. gilvus*, *Parula* (*americana*) *pitiayumi*, *Dendroica caerulea*, *Piranga rubra*, *P. flava*, *P. olivacea*, congener of *Pheucticus ludovicianus* (*P. aureo-ventris*): Distribution: 1.

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Territorio de Colonias; El Beni, Bolivia: Sep 1937 - Jun 1938: -------: Spec.; lit.: 510 species recorded; 16 species of nearctic migrants have breeding populations in the region; 15 species occur as transients or winter residents: Distribution; taxonomy: about 20.

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-------: -------: -------: Spec., obs.: Elanoides forficatus yetapa, Coccyzus americanus: Distribution: 11.

1001. ____________. 1974. More new birds for Rio Grande do Sul, Brazil. Auk 91: 429-432.
Lagoa dos Quadros, Rio Grande do Sul, Brazil: 20 Dec 1972: Marsh: Spec., obs.: Riparia riparia, Hirundo rustica: Distribution: 3.

1002. ____________. 1975. Two new southern migrants for Brazil. Auk 91: 820.

1003. ____________. 1975. [List of birds from Rio Grande do Sul]. Gramado (manuscrito), 14 p.

1004. ____________. 1976. [Some aspects of migration and distribution of birds from the state of Rio Grande do Sul, Brasil]. Iheringia 50: 69-80.
-------: -------: -------: Spec.; obs.: Buteo swainsoni, Pluvialis dominica, P. squatarola, Arenaria interpres, Capella gallinago, Chordeiles acutipennis, and Hirundo rustica are mentioned as examples of nearctic migrants that winter in Rio Grande do Sul; Limosa haemastica is mentioned as an example of a North American transient; other types of migration and migrants in the state are discussed: -------: 10.

1005. ____________. 1977. [List of birds from Rio Grande do Sul]. FZB - Fundacao Zoobotanica do Rio Grande do Sul.
Rio Grande do Sul, Brasil: -------: -------: -------: 573 species recorded including 72 nearctic migrants: Occurrence: 0.

1006. ____________. 1978. A list of birds of Rio Grande do Sul, Brazil. Iheringia 52: 85-102.
-------: -------: -------: Obs.; spec.: 575 species are recorded for the state of which 56 have nearctic migratory populations: 11.

1007. ____________. 1978. Supplementary list of new birds for Rio Grande do Sul, Brazil. Auk 95: 413-415.
-------: -------: -------: Spec.; obs.: Anas discors (band recovery from Saskatchewan); Falco peregrinus; Calidris bairdii, C. fusicollis, Chordeiles minor (Florida race): Distribution, dates: 8.

1008. Berla, H. F. 1946. [List of birds collected in Pernambuco with description of a subspecies and field notes]. Bol. Mus. Nac., Rio de Janeiro, N. S., Zoologia 65: 1-35.

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Rio Grande do Sul, Brasil: -------: -------: Spec.: 284 species are recorded. 17 of the 25 species of nearctic migrants recorded breed in Rio Grande do Sul: Locality and date: 2.

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-------: -------: lakes and marshes: Obs., spec., lit.: *Dendrocygna autumnalis*, *Anas discors*: Distribution; timing of arrival and departure (Sep-Apr); origin of banded specimens (Canada and northern U.S.A.): 10.

1016. Dekeyser, P. L. 1978. [Continental aquatic avifauna of Brazil]. Rev. Nordestina Biol. 1: 173-254.

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Serra do Roncador, Mato Grosso State Brazil: Aug-Sep 1968: Grassland, savannah, gallery forest, dry forest, riparian thickets: Spec.; obs.: Anhinga anhinga, Casmerodius albus, Egretta thula, Mycteria americana, Cathartes aura, Elanoides forficatus, Ictinia plumbea, Buteo swainsoni, Pluvialis dominica, Tringa solitaria, Actitis macularia, Pyrocephalus rubinus, Stelgidopteryx ruficollis, Troglodytes aedon, Vireo olivaceus virescens, Piranga flava; All permanent resident or intratropical migrants except for the Charadriiformes and Buteo swainsoni which were considered to be nearctic in origin: Distribution; habitat preferences: 29.

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Parts of Amazon drainage, Para, Brasil: -------: Varzea (Swamp forest), rain forest, savannah, second growth: Spec.: 972 forms (species and subspecies) are treated; 25 nearctic migrants occur as breeding birds, 28 as transients or winter residents; Charadrius wilsonia is considered a transient: Taxonomy; distribution: 48.

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-------: Jun-Sep 1956: -------: Spec.: *Pyrocephalus rubinus*, *Tringa solitaria*, *Actitis macularia*, *Calidris melanotos*, *Stelgidopteryx ruficollis*, *Vireo olivaceus*; 179 species recorded: Distribution: 2.

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-------: May 1966 - April 1967: Second growth, upland forest, swamp forest: Spec.; BR; HA: No nearctic migrants were recorded and only 5 of 84 recorded genera have nearctic migrant representatives; 108 species were recorded: Distribution; ecology; abundance: 2.

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Pernambuco, Brasil: Dec 1939-Jan 1940: -------: Spec.: 212 species recorded including - Butorides striatus, Casmerodius albus, Egretta thula, Catartes aura, Elanoides forficatus, Rallus longirostris, Porphyrula martinica, Tringa flavipes, Numenius phaeopus, Actitis macularia, Capella (gallinago) paraguaiae, Calidris fuscicollis, C. minutilla, Troglodytes (aedon) musculus, Stelgidopteryx ruficollis: Distribution, taxonomy: 36.

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Itatiaya National Park, portions in the states of Sao Paulo, Minas Gerais and Rio de Janeiro, Brasil: 1949-1951: -------: Spec.: 230 species recorded including resident races of Cathartes aura, Elanoides forficatus, Falco sparverius, Troglodytes (aedon) musculus, Vireo (olivaceus) chivi, Piranga flava: Distribution; taxonomy: 14.

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Acre, Brasil; Aug-Sep 1951: -------: Spec.: 139 species recorded including - Butorides striatus, Pluvialis dominica, Tringa flavipes, T. solitaria, Calidris melanotos, Tringites subruficollis, Pyrocephalus rubinus, Progne (subis) chalybea, Stelgidopteryx ruficollis, Hirundo rustica, Troglodytes aedon: Distribution, taxonomy: 14.

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Parana, Brasil, Jan-Feb 1954: -------: Spec.: Of 130 species recorded only two nearctic migrants - both resident - Butorides striatus, Parula (americana) pitiayumi: Distribution: 11.

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1126. ___________ & M. Sander. 1979. [Birds of Sao Leopoldo III. - Recreation Center of Trabalhador]. Estudos Leopoldenses, Univ. Vale do Rio dos Sinos 14: 71-77.

Parque zoologico da Fundacao Zoobotanica do Rio Grande do Sul; Novo Campus da Universidade do Vale do Rio dos Sinos, Sapucaia do Sul, Rio Grande do Sul, Brasil: 19 Sep 1976 - 15 Oct 1977: Eucalyptus park and gardens: Obs.: 93 species recorded including *Butorides striatus*, *Coragyps atratus*, *Ictinia plumbea*, *Tyrannus melancholicus*, *Progne (subis) chalybea*, *Pitangus sulphuratus*, *Vireo olivaceus*, *Parula (americana) pitiayumi*: Distribution: 6.

1127. ___________ & ___________. 1979. [Birds of Sao Leopolod. IV - New Campus - Unisinos]. Estudos Leopoldenses, Univ. Vale do Rio dos Sinos 14: 79-83.

Locality as in previous article: 30 Dec 1976 - 10 Dec 1977: Eucalyptus and gardens: Obs.: 84 species recorded including *Coragyps atratus*, *Cathartes aura*, *Falco sparverius*, *Athene cunicularia*, *Tyrannus melancholicus*, *Pitangus sulphuratus*, *Progne (subis) chalybea*, *Stelgidopteryx ruficollis*, *Troglodytes aedon*, *Parula (americana) pitiayumi*: Distribution, 7.

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1132. Bullock, D. S. 1949. North American bird migrants in Chile. Auk 66: 351-354.
-------: -------: -------: Lit.: Obs.; spec.: 34 species of nearctic migrants are listed; Bullock proposes that many nearctic shorebirds breed in South America: Distribution: 5.

1133. Cody, M. L. 1970. Chilean bird distribution. Ecology 51: 455-464.
-------: Sep-Dec 1965; Sep-Dec 1968: Censuses in 13 habitats: Obs.; FA: 64 species recorded including *Cathartes aura*, *Coragyps atratus*, *Falco peregrinus*, *Troglodytes aedon*: Species diversity; community structure: 15.

1134. Devillers, P. & J. A. Terschuren. 1978. Midsummer seabird distribution in the Chilean fjords. Gerfaut 68: 577-588.

1135. Goodall, J. D., A. W. Johnson & R. A. Philippi B. 1946-1964. [The birds of Chile].

1136. Hellmayr, C. E. 1932. The birds of Chile. Field Mus. Nat. Hist. Chicago, Zool. Ser. 19.

1137. Howell, T. R. 1975. Bank Swallow, Bobolink, and other birds at a desert reservoir in Chile. Condor 77: 105-106.

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1139. Jehl, J. R., Jr. 1971. Notes on Chilean birds. Dated at San Diego, Cal. Oct. 23, 1970.

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1141. ____________. 1967. The birds of Chile and adjacent regions of Argentina, Bolivia and Peru. Vol. 2. Buenos Aires. Platt Establecimientos Graficos S. A.

1142. ____________. 1972. Supplement to the birds of Chile and adjacent regions of Argentina, Bolivia and Peru. Buenos Aires, Johnson.
-------: -------: -------: Spec.; obs.: range extension for the following nearctic species into Chile are shown - *Florida caerulea*, *Hydranassa tricolor*, *Calidris mauri*, *Limnodromus griseus*, *Xema sabini*, *Gelochelidon nilotica*, *Chaetura pelagica*, *Riparia riparia*, *Stelgidopteryx ruficollis*, *Setophaga ruticilla*, *Dolichonyx oryzivorus*, *Piranga rubra*: other range extensions are reported: Distribution; description; some natural history: 27.

1143. Lane, A. A. 1897. Field-notes on the birds of Chile. Ibis, 297-317 pp.

1144. Lavercombe, B. J. & C. Hill. 1972. [Birds observed in the Province of Tarapacá, including the discovery of two species and one subspecies new for Chile]. Bol. Orintol. 4: 1-7.

1145. Markham, B. J. 1971. [Catalogue of the amphibians, reptiles, birds and mammals of the Province of Magallanes, Chile]. Punta Arenas.

1146. Peterson, R. T. & G. E. Watson. 1971. Franklin's Gull and Bridled Tern in southern Chile. Auk 88: 670-671.
43° S, 73° W; 53°50' S, 73° W: 10, 11, 29 Jan: Open ocean: Obs.: *Larus pipixcan*; "several" seen at these far southern localities: Distribution: 4.

1147. Philippi B., R. A. 1940. [Avian migrants from North America that visit Chile]. Bol. Mus. Nac. Hist. Nat., Santiago 18: 65-85.
-------: -------: -------: Spec.; obs.: 34 species discussed, mostly Charadriiformes; brief discussion of migration routes; most species begin to arrive in mid-August and start northward in Mar-Apr, though a few individuals of many species are present May-Aug: Migration; distribution: 0.

1148. ____________. 1964. [Catalogue of Chilean birds]. Ives. Zool. Chilenas 11: 1-179.
-------: -------: -------: -------: 56 species of birds with migratory breeding populations in North America have migratory or resident populations in Chile. Most are Charadriiforms or Ciconiiforms: ?

1149. ____________, A. W. Johnson & J. D. Goodall. 1944. [Ornithological expedition to northern Chile]. Bol. Mus. Nac. Hist. Nat. (Chile), 22: 65-120.

1150. Schlatter, R. P. 1976. [Birds observed in a sector of Lake Pinihue, Valdivia Province, with information on their ecology]. Bol. Soc. Biol. Conc. (Chile) 50: 133-143.

1151. ____________. 1979. [Ornithological advances in Chile]. Arc. Biol. Med. Exper. (Chile), 12: 153-168.

1152. Venegas, C. C. & J. Jory. 1974. [Three new species of birds for the Magallanes region]. Ans. Inst. Pat., Punta Arenas (Chile), 5: 127-130.

1153. ____________ & ____________. 1979. [Field guide for the birds of Magallanes]. Public. del. Inst. Patagonia, Punta Arenas (Chile). Serie Monografias N, 11: 253.

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1154. Anonymous. 1913. [Species deposited at the Museum of the La Salle Institute, Bogota]. Bol. Soc. Cienc. Nat. Inst., La Salle (1-2-4):

1155. ____________. 1914. [Speices deposited at the Museum of the La Salle Institute, Bogota]. Bol. Soc. Cienc. Nat. Inst. La Salle 2 (1-5; 8-10): contratapa y tapa posterior.

1156. ____________. 1915. [Species deposited at the Museum of the La Salle Institute, Bogota]. Bol. Soc. Cienc. Nat. Inst., La Salle 3 (4-6-8-9-10): contratapa.

1157. ____________. 1915. [Principal species deposited at the Museum of the La Salle Institute, Bogota]. Bol. Soc. Cienc. Nat. Inst., La Salle 3(2): contratapa.

1158. ____________. 1915. [Principal gifts made to Museum of the La Salle Institute, Bogota]. Bol. Soc. Cienc. Nat. Inst., La Salle 3(1): contratapa.

1159. ____________. 1917. [An ornithological curiosity]. Bol. Soc. Cienc. Nat. Inst., La Salle 6: 45-48.

1160. ____________. 1918. [Principal gifts to the Museum of the La Salle Institute, Bogota]. Bol. Soc. Colomb. Cienc. Nat. 6(55): contratapa. Bogota.

1161. Apolinar, M. H. 1913. [Species deposited at the Museum of the La Salle Institute, Bogota]. Bol. Soc. Cienc. Nat. Inst., La Salle 1(1)2: contratapa y tapa posterior. Bogota.

1162. ____________. 1914. [The sparrow hawk]. Bol. Soc. Cienc. Nat. Inst., La Salle 2: 100-109.

1163. _____________. 1914. El Condor. Bol. Soc. Cienc. Nat. Inst., La Salle 2(7): 198-207.

1164. _____________. 1915. [Interesting captures (birds)]. Bol. Soc. Cienc. Nat. Inst., La Salle 3: 15-16.

1165. Apolinar M., Hermano. 1917. [Interesting captures]. Bol. Soc. Cienc. Nat. Inst. La Salle, 6(37): 30-32; (39): 62-64; (40): 75-76; (44): 142-143.

1166. _____________. 1917. [Common names]. Bol. Soc. Cienc. Nat. Inst. La Salle, 6(43): 124-126; (44): 133-135.

1167. _____________. 1917. [Ornithological observations]. Bol. Soc. Cien. Nat. Inst. La Salle, 6(36): 3-9; (38): 44-45; (41): 81-84; (42): 102-106.

1168. _____________. 1918. [Observations made in the last months of the past year]. Bol. Soc. Nat. Inst. La Salle, 6 (44-47-48): 5-8.

1169. _____________. 1919. [Some interesting captures]. Bol. Soc. Colomb. Cienc. Nat., 7(49-60-61): 112. Bogotá.

1170. Blake, E. R. 1955. A collection of Colombian game birds. Fieldiana: Zool., 37: 9-23.

1171. _____________. 1959. New and rare Colombian birds. Lozania, no. 11: 1-10.

1172. _____________. 1961. Notes on a collection of birds from northeastern Colombia. Fieldiana: Zool. 44: 25-44.

Arauca lowlands and Boyaca, Colombia: 6 Mar-29 May 1969: -------: Spec.: *Capella gallinago paraguaiae*, *Calidris minutilla*, *Micropalma himantopus*, *Dendroica striata*; 111 forms listed of 279 forms recorded: Distribution; taxonomy: 4.

1173. _____________. 1962. Birds of the Sierra Macarena, eastern Colombia. Fieldiana: Zool. 44: 69-112.

-------: -------: -------: Spec.: *Anhinga anhinga*, *Capella gallinago delicata*, *Himantopus mexicanus*, *Contopus virens*, *Empidonax traillii*, *Riparia riparia*, *Hirundo rustica*, *Vireo olivaceus olivaceus*, *V. o. chivi*, *Dendroica fusca*, *D. striata*, *Seiurus noveborancensis*, *Wilsonia canadensis*, *Setophaga ruticilla*, *Piranga rubra*, *P. olivacea*, *Spiza americana*; 350 species recorded, mostly typical of eastern lowlands rather than Andean highlands: Distribution; taxonomy: 24.

1174. Boggs, G. O. 1961. [Notes on birds of "El Centro" in the middle valley of Rio Magdalena, Colombia]. Nov. Colomb. 1: 401-423.

1175. Bond, J. & R. Meyer de Schauensee. 1938. The birds of Malepelo Island, Colombia. Proc. Acad. Nat. Sci., Philadelphia 90: 155-157.

1176. Borrero, J. I. 1944. [Three occasional ducks in the Sabana de Bogota and the Laguna de Fuquene]. Caldasia 3: 229-231.
-------: -------: -------: Obs.: *Anas clypeata*: Distribution: 0.

1177. ______________. 1945. [Migratory birds in the parks and gardens of Bogota]. Caldasia 3: 415-418.
-------: -------: -------: Obs.: *Coccyzus americanus*, *Catharus ustulatus*, *Vireo olivaceus*, *Dendroica petechia*, *D. fusca*, *Mniotilta varia*, *Piranga olivacea*, *P. rubra*, *Pheucticus ludovicianus*: Timing of migration movement: behavior; foods: 0.

1178. ______________. 1952. [Some rare birds in the Sabana de Bogota]. Lozania 1: 7-12.

1179. ______________. 1955. [Notes on Colombian birds (#2)]. Lozania 9: 1-15.

1180. ______________. 1960. [Notes on birds of the Colombian Amazon and Orinoco]. Caldasia 8: 485-514.

1181. ______________ & J. C. Hernandez. 1957. [Preliminary report on birds and mammals of Santander, Colombia]. An. Soc. Biol. 7: 197-212.

1182. ______________ & ______________. 1958. [Notes on Colombian birds]. Caldasia 8: 253-294.

1183. __________ & __________. 1961. [Notes on birds of Colombia and description of a new subspecies Forpus conspicillatus]. Nov. Colomb. 1: 430-445.

1184. __________ & A. Olivares. 1952. [Notes on Colombian birds]. Lozania 3: 1-12.

1185. __________ & __________. 1955. [Avifauna of the Soata region, Department of Boyaca, Colombia]. Caldasia 7: 51-86.

1186. __________, __________ & J. C. Hernandez. 1962. [Notes on the birds of Colombia]. Caldasia 8: 585-612.

1187. Brooker, J. A. 1969. An exile in South America bird watching in Bogota, Columbia. Bokmakierie 21: 92-93.

Bogota, Colombia: -------: Garden: Piranga rubra: Distribution; hunting mentioned as conservation problem in Colombia: 0.

1188. Cala, P. 1970. [On the exploitation and control of the Amazonian fauna]. Proc. II Simposio y Foro de Biologia Tropical Amazonica, Ed. J. M. Idrobo, Bogota: 145-15.

1189. Carriker, M. A., Jr. 1954. Additions to the avifauna of Colombia. Novedades Colombianas 1: 14-19.

1190. __________. 1955. Notes on the occurrence and distribution of certain species of Colombian birds. Nov. Colomb. 1: 48-64.

1191. __________. 1959. New records of rare birds from Narino and Cauca and notes on others. Nov. Colomb. 1: 196-199.

1192. Chapman, F. M. 1917. The distribution of bird life in Colombia: a contribution to a biological survey of South America. Bull. Amer. Mus. Nat. Hist. 36: 1-729.

1193. Darlington, P. J., Jr. 1931. Notes on the birds of Rio Frio (near Santa Marta), Magdalena, Colombia. Bull. Mus. Comp. Zool., Harvard 71: 349-421.

1194. Donahue, P. K. 1977. Reddish Egret and Herring Gull in Caribbean Colombia. Amer. Birds 31: 286.

Isla de Salamanca, Colombia: Jul-Aug 1974; Jan 1975: Brackish pools: Obs.: Dichromanassa rufescens, Larus argentatus, L. articilla, Sterna caspia: Distribution: 3.

1195. Dugand, A. 1945. [Colombian ornithological notes, II]. Caldasia 3: 397-405.

1196. __________. 1947. [Birds of Atlantica Dept., Colombia]. Caldasia 4: 499-648.

1197. __________. 1948. [Colombian ornithological news. IV.]. Caldasia 5: 157-199.

1198. __________. 1951. [Colombian ornithological notes, V]. Rev. Acad. Colomb. Cienc. Exact. 8: 157-163.

1199. ___________. 1952. [Some birds from Rio Apoporis]. Lozania 4: 1-12.

1200. ___________ & J. I. Borrero. 1946. [Birds of the Colombian shore of the Amazon]. Caldasia 4: 131-156.

1201. ___________ & ___________. 1948. [Birds of the confluence of Caqueta and Orteguaza, Colombia]. Caldasia 4: 115-156.

1202. Easterla, D. A. & W. George. 1970. Marbled Godwit and Yellow-throated Warbler in Colombia, South America. Condor 72: 473.

Puerto Colombia and Barranquilla, Atlantico, Colombia: 23, 24, Dec 1969: Mud flats, "trees": Obs.: -------: Distribution: 2.

1203. Friedmann, H. 1947. Colombian birds collected by Brother Niceforo. Caldasia 4: 471-494.

1204. Garcia, J. C. 1925. [Colombian avifauna (catalogue of common and scientific names of 200 species)]. Bol. Soc. Colomb. Cienc. Nat. 14: 163-171.

1205. Gilliard, E. T. 1942. The Cordillera Macarena, Colombia. Geogr. Rev. 32: 463-470.

1206. Gines, H. & R. Aveledo H. 1947. [The birds of Valle de Cariaco]. Mem. Soc. Cien. Nat., La Salle 17: 292-311.

1207. Haffer, J. 1959. [Notes on the birds of the Uraba region]. Lozania 12: 1-49.

1208. ___________. 1961. [Notes on the avifauna of the Guajira Peninsula]. Nov. Colomb. 1: 374-396.

1209. ___________. 1967. On birds from the northern Choco region, NW-Colombia. Veroff. Zool. Staatssammlung Munchen 11: 123-149.

1210. ___________. 1975. Avifauna of Northwestern Colombia, South America. Bonner Zool. Monogr. 7.

-------: 26 months during the years 1958-1967: Evergreen rain forest; evergreen seasonal forest; semi-evergreen seasonal forest; cloud forest; some seral stages: Spec., obs: 32 species with migratory populations known to breed in the nearctic were found in this area of Colombia. Over 250 species were recorded: Climate, topography, vegetation, ecology and zoogeography are discussed: 206.

1211. ___________ & J. I. Borrero. 1965. On birds from northern Colombia. Rev. Biol. Trop. 13: 29-53.

Serrania de San Jeronimo, Colombia: Sep 1960; Jan-Mar 1961: Subhygrophytic tropical forest: Spec.; obs.: 141 species are treated, 14 of which have nearctic migrant populations: Distribution; taxonomy: 25.

1212. Hellmayr, C. E. 1910. The birds of the Rio Madeira. Novit. Zool. 17: 257-428.

1213. ___________. 1911. A contribution to the ornithology of western Colombia. Proc. Zool. Soc. London, 1911: 1084-1213.

1214. Hilty, S. L. 1974. Notes on birds at swarms of army ants in the highlands of Colombia. Wilson Bull. 86: 479-481.

1215. Lehmann, F. C. 1944. [Additional notes on the birds of Colombia]. Caldasia 2: 407-410.

1216. ___________. 1957. [Contributions to the study of the fauna of Colombia XII]. Nov. Colomb. 1: 101-156.

1217. ___________. 1960. [Contributions to the study of the fauna of Colombia XV]. Nov. Colomb. 1: 256-276.

1218. ___________ & J. Haffer. 1970. [The avifauna of the upper Rio Patia Valley, Cauca Dept., Colombia]. Rupicola (Contrib. Cient. Mus. Deptal. Hist. Nat. Cali, Colombia) 1, im Druck.

1219. Lemke, T. O. & P. E. Gertler. 1978. Recent observations on the birds of the Sierra de la Macarena, Colombia. Condor 80: 453-455.

1220. Lumsden, H. G. (ms) A lecture on the birdlife of Colombia. Toronto Ornithological Club, Toronto, Ontario, Canada, 1951.

1221. Marinkelle, D. J. 1970. Birds of the Serrania de Macuira, Guajira Peninsula, Colombia. Mitt Inst Columbo-Aleman Invest. Cient. Punta de Betin. 4: 15-34.

-------: 10-14 Jan 1968: Xerophytic, subhygrophytic and subxerophytic vegetation: Spec.; obs.: 109 species documented including 34 species of nearctic migrants some breedling locally; *Dendroica townsendi*, *Geothylypis trichas* recorded: Distribution: 18.

1222. Meyer de Schauensee, R. 1946. Colombian zoological survey; part 2: Notes on Colombian crows, wrens and swallows. Acad. Sci. Not. Nat., Philadelphia 161.

1223. ___________. 1946. Colombian Zoological Survey; part 4: Further notes on Colombian birds, with the description of new forms. Acad. Sci. Not. Nat., Philadelphia 167.

1224. ___________. 1947. New or little known Colombian birds. Proc. Acad. Nat. Sci. Philadelphia 99: 107-126.

1225. ___________. 1948-1952. The birds of the Republic of Colombia. Caldasia 4: 251-1214.

1226. ___________. 1949. The birds of the Republic of Colombia. 2. Caldasia 5: 381-644.

1227. ___________. 1950. The birds of the Republic of Colombia. Caldasia 4: 645-871.

1228. ___________. 1950. Colombian Zoological Survey. 5. New birds from Colombia. Acad. Sci. Not. Nat. Philadelphia 221.

1229. ___________. 1950. Colombian Zoological Survey. 7. A collection of birds from Bolivar, Colombia. Proc. Acad. Nat. Sci. Philadelphia 102: 111-139.

1230. ____________. 1952. Colombian Zoological Survey. 10. A collection of birds from southeastern Narino, Colombia. Proc. Acad. Nat. Sci. Philadelphia 104: 1-33.

1231. ____________. 1959. Additions to the "Birds of the Republic of Colombia." Proc. Acad. Nat. Sci. Philadelphia 111: 53-75.

1232. ____________. 1964. The birds of Colombia and adjacent areas of South and Central America. Narberth, PA., Livingston Publ. Co.

1233. Miller, A. H. 1947. The tropical avifauna of the upper Magdalena Valley, Colombia. Auk 64: 351-381.

Villavieja, Huila, Colombia (435 m): Jan-Feb 1945: Xerophytic scrub; savannah; streamside woodland: Spec.; obs.: 130 species recorded including 25 nearctic migrants, some of which breed locally: Concurs with Chapman (1917) that upper Magdelena fauna is related to west Andean and Caribbean fauna rather than that of the Amazonian basin or eastern llanos: Zoogeography: 1.

1234. ____________. 1952. Supplementary data on the tropical avifauna of the arid upper Magdalene Valley of Colombia. Auk 69: 450-457.

Villavieja, Huila, Colombia: 26 Jan-7 Mar 1949: Thorn scrub; streamside forest: Spec.; obs.: Casmerodius albus, Catharus mimimus, Vireo (olivaceus) flavoviridis, Dendroica petechia: 25 species treated; a total of 192 reported for the region: Distribution; zoogeography: 4.

1235. Molano Campuzano, J. 1964. [Natural parks, monuments and nature reserves in Colombia]. Bol. Soc. Geog. Col. 22, Nos. 81/82.

1236. Niceforo-Maria, H. 1948. [Notes on Colombian birds. III]. Caldasia 4: 201-210.

1237. ____________ & A. Olivares. 1964. [Additons to the Colombian avifauna. I.]. Bol. Inst. La Salle, Bogota 204: 264-286.

1238. ____________ & ____________. 1965. [Additions to the Colombian avifauna. II.]. Bol. Soc. Ven. Cienc. Nat. 26: 36-58.

1239. ____________ & ____________. 1966. [Additions to the Colombian avifauna. III.]. Bol. Soc. Ven. Cienc. Nat. 110: 370-393.

1240. ____________ & ____________. 1967. [Additions to the Colombian avifauna. IV.]. Hornero 10: 403-435.

1241. ____________ & ____________. 1968. [Additions to the Colombian avifauna. V.]. Bol. Inst. de La Salle 208: 271-291.

1242. ____________ & ____________. 1969. [Additions to the Colombian avifauna. I.]. Bol. Inst. de La Salle 204: 264-286.

1243. Olivares, A. 1952. Colombian birds collected by Fr. Antonio Olivares, OFM. Tesis de grado (Master of Science). Washington, D.C., The Catholic University of America.

1244. ____________. 1955. [Some birds of Vaupes (Colombia)]. Caldasia 7: 259-275.
-------: 10-15 Dec 1953: Riparian; hydrophytic tall, evergreen forest: Spec.; obs.: 43 forms treated including - *Butorides striatus*, *Actitis macularia*, *Capella gallinago*, *Sterna albifrons*, *Piranga rubra*: Distribution:

1245. ____________. 1957. [Birds of the Pacific Coast, Guapi, Cauca, Colombia. II.]. Caldasia 8: 33-83.

1246. ____________. 1958. [Birds of the Pacific Coast, Guapi, Cauca, Colombia. III.]. Caldasia 8: 217-251.

1247. ____________. 1959. [Migratory birds in Colombia]. Ref. Acad. Cienc. 10: 341-442.

1248. ____________. 1960. [Some birds from Gaitania (Ataco, Tolima, Colombia)]. Caldasia 8: 379-382.

1249. ____________. 1962. [Birds of the southern region of the Sierra de la Macarena, Meta, Colombia]. Rev. Acad. Colomb. Cienc. Exactas, Fis. y Nat. 11: 305-345.

1250. ____________. 1963. [Notes on birds from the eastern Andes in Boyaca]. Bol. Soc. Ven. Cien. Nat. 25: 91-125.

1251. ____________. 1964. Additions to the birds of the Comisaria del Vaupes, Colombia II. Caldasia 9: 151-184.
-------: 23 Apr-Jun 1961: Savannah; riparian: Spec.; obs.: 77 forms are treated including *Florida caerulea* (transient?), *Elanoides forficatus*, *Bartramia longicauda*, *Tringa flavipes*, *Setophaga ruticilla*, *Dolichonyx oryzivorus*: Distribution: 37.

1252. ____________. 1964. [Additions to the birds of the Comisaria del Vaupes (Colombia)]. Ref. Colomb. Cien. Exactas, Fisicas, Nat. 12: 163-173.

1253. ____________. 1965. [Introduction to the history of Colombian ornithology]. Rev. Acad. Cienc. 12: 367-375.

1254. ____________. 1969. [Birds of Cundinamarca]. Dir. Div. Cultural Univ. Nac. Colomb., Bogota 69-70.
Cundinamarca, Colombia: -------: -------: Spec.; obs.: 639 species and subspecies are recorded of which 62 are considered migrants including *Pelecanus occidentalis*, *Ardea herodias*, *Florida caerulea*, *Butorides (striatus) virescens*, Several Anatidae, *Accipter cooperii*, *Buteo platypterus*, *Circus cyaneus*, *Falco columbarius*, *Porzana carolina*, numerous Charadriiformes, *Coccyzus erythropthalmus*, *C. americanus*, *Caprimulgus carolinensis*, *Tyrannus dominicensis*, *Myiarchus crinitus*, *Nuttallornis borealis*, *Contopus virens*, *C. richardsonii*, *C. sordidulus*, *Empidonax virescens*, *E. traillii*, *Progne subis*, *Mniotilta varia*, *Vermivora chrysoptera*, *V. peregrina*, *Oporornis philadelphia*: keys to order, family, and species; ecological descriptions for each municipality; glossary; abundance; distribution, breeding nearctic migrants include - *Accipiter striatus*, *Fulica americana*, *Asio flammeus*, *Eremophila alpestris*, *Vireo gilvus leucophrys*: 73.

1255. ___________. 1970. Pp. 312-353. *in*: II Simposio y Foro de biologia tropical amazonica (J. M. Idrobo, ed.), Bogota, Colombia.

-------: -------: -------: Spec.; obs.; Lit.: -------: Ecological and zoogeographic summary for the region; comments on conservation needs: 25.

1256. ___________. 1971. Birds of the eastern slope of the eastern Andes, upper Rio-Cusiana, Boyaca, Columbia. Caldasia 11: 203-226.

-------: 10-18 Oct 1967; pine forest: 52 species of 47 genera are treated including - *Wilsonia canadensis*: Distribution; taxonomy; zoogeography: 23.

1257. ___________ & J. C. Hernandez. 1962. [Birds of the Comisaria del Vaupes (Colombia)]. Rev. Biol. Trop. Univ. Costa Rica 10: 61-90.

Mitu, Vaupes, Colombia: 11-22 Aug 1960: Tropical forest; agricultural lands: Spec.; obs.: 100 species are recorded including - *Anhinga anhinga*, *Casmerodius albus*, *Nycticorax nycticorax*, *Mycteria americana*, *Dendrocygna autumnalis*, *Tringa melanoleuca*, *Capella gallinago*, *Calidris melanotos*, *Coccyzus americanus*, *Pyrocephalus rubinus*, *Troglodytes aedon*, *Vireo olivaceus*: Distribution: 23.

1258. ___________ & H. Romero Zambrano. 1973. [Notes on the ornithological collection of the Biology Department, Santander Industrial University, Bucaranga, Colombia. I.]. Rev. Univ. Industrial Santander, Colombia 5: 43-71.

Middle Magdalena Valley (mostly), Colombia (elev. 75 m - 2,000 m): 1972 (mostly): -------: Spec.; obs.: 105 forms treated including 18 nearctic migrants most of which (14) are waterbirds or shorebirds: Taxonomy; abundance; distribution; status; some comments on habits and habitat: 15.

1259. ___________ & ___________. 1980. [Notes on the ornithological collection of the Biology Department, Santander Industrial University, Bucaramanga, Colombia. II.]. Rev. Univ. Social Catolica de La Salle.

1260. Orejuela, J. E. 1979. Migratory birds of Colombia P. 38 *in* Organization of American States (OAS) Technical Meeting on Conservation of Migratory Animals of the Western Hemisphere and their Ecosystems. Washington, D. C., OAS S G, Ser. P. III. 3.

1261. Paynter, R. A., Jr. & M. A. Traylor, Jr. 1977. Ornithological Gazetteer of Ecuador. Cambridge, Massachusetts, Harvard Univ.

1262. Philipson, W. R., C. C. Doncaster & J. M. Idrobo. 1951. An expedition to the Sierra de la Macarena, Colombia. Georgr. Jour. 117: 188-199.

1263. Romero-Zambrano, H. 1978. Record of 12 birds for Colombia. Lozania 26: 1-8.

Puerto Navino, 65 km NW Leticia, Comisaria del Amazonas, Colombia: 17 Feb-19 Mar 1975: -------: Spec.: 12 species recorded including *Vireo olivaceus golimoensis*, an Amazon basin resident: Distribution: 12.

1264. Russell, S. M. 1980. Distribution and abundance of North American migrants in lowlands of northern Colombia. Pp. 249-252. *in* Migrant birds in the Neotropics: ecology, behavior, distribution, and conservation. (A. Keast & E. S. Morton, Eds.). Washington, D. C., Smithsonian Inst. Press.
near Santa Marta, Dept. Magdalena, Colombia: Oct. 1971 - May 1972: xeric scrub: Obs.: Lit.: Status: 1.

1265. ___________, J. C. Barlow & D. W. Lamm. 1979. Status of some birds on Isla San Andres and Isla Providencia, Colombia. Condor 81: 98-100.

1266. Sclater, P. L. 1855. On birds received in collections from Santa Fe di (sic) Bogota. Proc. Zool. Soc. London, 131-164.

1267. ___________. 1856. On some additional species of birds received in collections from Bogota. Proc. Zool. Soc. London, 24: 25-31.

1268. ___________ & O. Salvin. 1879. On the birds collected by the late Mr. T. K. Salmon in the State of Antioguia, United States of Colombia. Proc. Zool. Soc. London, 486-550.

1269. Todd, W. E. C. 1919. Descriptions of apparently new Colombian birds. Proc. Biol. Soc. Washington 32: 118-133.

1270. ___________ & M. A. Carriker, Jr. 1922. The birds of the Santa Marta region and Colombia. Ann. Carnegie Mus. 14: 1-611.

1271. Wetmore, A. 1946. New birds from Colombia. Smithsonian Misc. Coll. 106: 1-14. Proc. Biol. Soc. Washington, D. C.

1272. ___________. 1955. Further additions to the avifauna of Colombia. Nov. Colomb. 1: 45-47.

1273. ___________. 1958. Additional subspecies of birds from Colombia. Proc. Bio. Soc. Washington 71: 1-4.

1274. ___________. 1965. Additions to the list of birds known from the Republic of Colombia. Oiseau 35, no special: 156-162.

1275. ___________. 1968. Additions to the list of birds recorded from Colombia. Wilson Bull. 80: 325-326.
-------: -------; 1947; 1950: -------: Spec.: 8 species treated including *Coccyzus americanus*, *Chordeiles acutipennis*: Distribution; taxonomy: 0.

ECUADOR

1276. Berlioz, J. 1937. [Ornithological notes from a voyage to Ecuador]. Oiseau N.S., 7: 389-416.

1277. ___________. 1937. [Notes on some rare or little-known species from Ecuador]. Bull. Mus. Nat. Hist. Nat. Paris 9: 114-118.

1278. ___________. 1937. [Study of a bird collection from Ecuador]. (Mission Flornoy). Bull. Mus. Hist. Nat. Paris 9: 354361.

1279. Brosset, A. 1964. [Birds of Pacaritambo (western Ecuador)]. Oiseau R.F.O. 34: 124; 112135.

Pacaritambo, near Quevedo, Balsor, Ecuador: 1828 May, 1520 Jun 1962; 1015 Feb 1963: Equatorial rain forest, pasture: Spec.; obs.: *Pyrocephalus* *rubinus*, *Progne* (*subis*) *chalybea*, *Stelgidopteryx* *ruficollis*, *Troglodytes* *aedon*, *Vireo* *olivaceus*, *Parula* (*americana*) *pitiayumi*, *Piranga* *rubra*, *P*. *flava*, *Casmerodius* *albus*, *Cathartes* *aura*, *Elanoides* *forficatus*: Distribution; ecology; nesting-breeding season for most species is Jan-Mar: 0.

1280. Butler, T. Y. 1979. The birds of Ecuador and the Galapagos Archipelago. Sanford, Maine. Lincoln Press, Inc.

-------: -------: -------: Obs.; lit.: 1391 species recorded for Ecuador including 127 nearctic migrants; 120 species recorded for the Galapagos including 60 nearctic migrants: Abundance; climatic region: 23.

1281. Chapman, F. M. 1926. The distribution of bird-life in Eucador. Bull. Amer. Mus. Nat. Hist. 55: 1-784.

1282. Lévêque, R. 1964. Notes on Equadorian birds. Ibis 106: 52-62.

Quito; Guayaquil, Ecuador: 18 Jan 1960-3 Apr 1962: -------: Obs.: 180 species recorded including 61 species of nearctic migrants some of which breed locally: Distribution: 9.

1283. Marchant, S. 1958. The birds of the Santa Elena Peninsula, S. W. Ecuador. Ibis 100: 349-387.

1284. ___________. 1959. The breeding season in S. W. Ecuador. Ibis 101: 137-152.

1285. ___________. 1960. The breeding of some S. W. Ecuadorian birds. Ibis 102: 349-382; 584-599.

1286. Meyer de Schauensee, R. 1951. Notes on Ecuadorian birds. Acad. Sci. Not. Nat. Philadelphia 234: 1-11.

1287. Mills, E. L. 1967. Bird records from southwestern Ecuador. Ibis 109: 534-538.

Guayaquil; Santa Elena Peninsula, Ecuador: late Sep - early Oct 1965; early May 1966: -------: Obs.: 44 species recorded including *Pelecanus* *occidentalis*, *Florida* *caerulea*, *Egretta* *thula*, *Cathartes* *aura*, *Pandion* *haliaetus*, *Actitis* *macularia*, *Heteroseclus* *incanum*, *Arenaria* *interpres*, *Larus* *pipixcan*, *Sterna* *hirundo*, *S*. *maxima*, *Chlidonias* *niger*, *Gelochelidon* *nilotica*, *Pyrocephalus* *rubinus*, *Progne* (*subis*) *chalybea*, *Troglodytes* *aedon*, *Dendroica* *petechia*: Distribution: 10.

1288. Norton, D. W. 1965. Notes on some non-passerine birds from eastern Ecuador. Breviora, Mus. Comp. Zool. 230: 1-11.
Limoncocha; Mount Sumaco, Ecuador (elev. 300; 1500 m): Jun-Sept 1963-1964: -------: Spec.; obs.: 145 forms recorded; only 11 species are treated in the paper including Ixobrychus exilis: Taxonomy; some natural history: 11.

1289. ___________, G. Orces & E. Sutter. 1972. Notes on rare and previously unreported birds from Ecuador. Auk 89: 889-894.
Napo; Rio Arajuno, Ecuador: -------: -------: Spec.: Butorides (striatus) virescens (wintering); Ixobrychus exilis (breeding): Distribution: 13.

1290. Ortiz-Crespo, F. & S. Valarezo-Delgado. 1975. [List of birds from Ecuador]. Soc. Ecuatoriana Francisco Campos de Amigos de la Naturaleza, Publ. No. 2: 1-37.

1291. Pearson, D. L. 1972. [A study of the birds of Limoncocha, Prov. Napo, Ecuador]. Bol. Inform. Cient. Nac., Quito 13: 335-346.

1292. Rylander, M. K. 1974. [Notes on birds of Lake Cuicocha, Ecuador]. Neotropica 20: 40-42.
Lago Cuicocha (3,081m elev.), 18 km NW Quito, Ecuador: 10-16 Aug 1972: Lake; woodland; scrub: Spec.; obs.: 26 species recorded including - Podilymbus podiceps, Falco sparverius, Fulica americana, Actitis macularia, Stelgidopteryx ruficollis, Troglodytes aedon: Distribution: 1.

1293. Sclater, P. L. & O. Salvin. 1880. On new birds collected by Mr. C. Buckley in eastern Ecuador. Proc. Zool. Soc. London, pt. 2, pp. 155-161.

1294. Stevenson, H. M. 1965. Some records of North American migrants in Ecuador. Wilson Bull. 77: 407.

1295. Tallman, D. & E. Tallman. 1977. [Additions and revisions to the list of the avifauna of Limoncocha, Prov. Napo, Ecuador]. Rev. Univ. Católica, Quito 16: 217-224.

FALKLAND ISLANDS

1296. Bennett, A. G. 1926. A list of the birds of the Falkland Islands and dependencies. Ibis 68: 306-333.
-------: -------: -------: Spec.; obs.; lit.: Ajaia ajaja, Falco peregrinus cassini, Numenius borealis, Bartramia longicauda, Tringa flavipes, Calidris fuscicollis, C. bairdii, Steganopus tricolor: Distribution: 6.

1297. ___________. 1931. Additional notes on the birds of the Falkland Islands and dependencies. Ibis 2, 13th ser.: 12-13.

1298. Brooks, W. S. 1917. Notes on some Falkland Island birds. Bull. Mus. Comp. Zool. 61: 135-160.

1299. Cawkell, E. M. & J. E. Hamilton. 1961. The birds of the Falkland Islands. Ibis 103a: 1-27.

1300. Cobb, A. T. 1933. Birds of the Falkland Islands. London. H. F. & G. Witherby.

1301. Pettingill, O. S., Jr. 1960. The effects of climate and weather on the birds of the Falkland Islands. Proc. 12th Inter. Orinth. Congr. 604-614 pp.

1302. ___________. 1973. Passerine birds of the Falkland Islands: their behavior and ecology. Living Bird 12: 95-136.
-------: 22 Oct 1953 - 9 Mar 1954; 8 Nov 1971 - 24 Mar 1972: Marsh; grassland; scrub: *Cistothorus platensis*, *Troglodytes aedon*: Ecology; behavior: 20.

1303. Wace, R. 1921. A list of the birds of the Falkland Islands. Hornero 2: 194-204.

1304. Woods, R. W. 1975. The birds of the Falkland Islands. Oswestry, Shropshire, England. Nelson.

FRENCH GUIANA

1305. Berlepsch, H. von. 1908. On the birds of Cayenne. Novit. Zool. 15: 103-164.

1306. Berlioz, M. J. 1962. [Study of a bird collection from French Guiana]. Bull. Mus. Hist. Nat. Paris 34: 131-143.
Cayenne; Maroni, French Guiana; Aug-Oct 1961; -------; Spec.; *Catoptrophorus semipalmatus*, *Tringa melanoleuca*, *Calidris minutilla*; 120 species recorded: Distribution: 0.

GUYANA

1307. Beebe, C. W. 1919. The higher vertebrates of British Guiana. Zoologica 2: 229-233.

1308. ___________, G. I. Hartley & P. G. Howes. 1917. Tropical wild life in British Guiana. Vol. 1. New York, New York Zoological Society.

1309. Blake, E. R. 1950. Birds of the Acary Mountains, southern British Guiana. Fieldiana: Zoology 32: 419-474.

1310. Cabinis, J. 1848. [Birds]. Pp. 662-765. *in*: Reisen in Britisch-Guiana in den Jahren 1840-1844 (R. Schomburgk, ed.). Vol. 3 Leipzig.

1311. Chubb, C. 1916. Birds of British Guiana. 2 vols. London.

1312. __________. 1921. The birds of British Guiana. Vols. I and II. London.

1313. Davis, T. A. W. 1935. Some nesting notes from the savannas of the Rupununi District, British Guiana. Ibis (13)5: 530-537.

1314. __________. 1952. An outline of the ecology and breeding seasons of the birds of the lowland forest region of British Guiana. Ibis 95: 450-467.

1315. __________. 1953. An outline of the ecology and breeding seasons of birds of the lowland forest region of British Guiana. Ibis 95: 450-467.

Mazaruni station, British Guiana: Dec 1931-Jan 1939: forest, clearings, river, scrub, orchard savannah, marsh forest: Spec.; obs.: *Pelecanus occidentalis*, *Anhinga anhinga*, *Florida caerulea*, *Casmerodius albus*, *Hydranassa tricolor*, *Mycteria americana*, *Cathartes aura*, *Elanoides forficatus*, *Gallinula chloropus*, *Pluvialis dominica*, *Charadrius hiaticula*, *Bartramia longicauda*, *Tringa flavipes*, *T. melanolecua*, *T. solitaria*, *Actitis macularia*, *Capella gallinago delicata*, *C. g. paraguaiae*, *Calidris pusillus*, *C. fusicollis*, *C. melantos*, *Sterna dougallii*, *Progne subis*, *P.* (*subis*) *chalybea*, *Riparia riparia*, *Hirundo rustica*, *Dendroica petechia*; comments on ecology, migrations from southern South America, climate, vegetation; forest fires a problem causing widespread change in bird life: 13.

1316. __________. 1954. Notes on northern migrants observed inland in British Guiana. Ibis 96: 441-448.

Mazaruni Station (6° 24' N., 58° 39' W.) British Guiana: Dec 1931 - Jan 1939: -------: 40 northern migrants occur in British Guiana as winter visitors or transients; 26 occur at Mazaruni Station; most are not common: Distribution; abundance; migration: 10.

1317. Quelch, J. J. 1891. Native birds of Georgetown. Timehri 2: 69-107.

1318. __________. 1896. Migratory birds in British Guiana. Timehri 2: 258-279.

1319. Salvin, O. C. 1882. A list of the birds obtained by Mr. Henry Whitely in British Guiana. Ibis, 76-84.

1320. __________. 1883. A list of the birds obtained by Mr. Henry Whitely in British Guiana. Ibis, 203-212.

1321. __________. 1884. A list of the birds obtained by Mr. Henry Whitely in British Guiana. Ibis, 356-358, 443-452.

1322. __________. 1885. A list of the birds obtained by Mr. Henry Whitely in British Guiana. Ibis, 195-219; 291-306; 418-439.

1323. __________. 1886. A list of the birds obtained by Mr. Henry Whitely in British Guiana. Ibis, 57-58; 168-181; 499-510.

1324. Schomburgk, R. 1848. [Travels in British Guiana in the years 1840-1844]. Vol. III (Birds, J. Cabanis, pp. 533-1260). Leipzig.

1325. Synder, D. E. 1966. The birds of Guyana (formerly British Guiana) Salem.
-------: -------: -------: Lit.; obs.: 720 species recorded - 33 nearctic migrants with breeding populations; 53 species that occur as transients or winter residents including *Himantopus mexicanus*, *Gelochelidon nilotica*, *Larus atricilla*, *Sterna hirundo*, *S. fuscata*, *S. albifrons* and *S. maxima*; *Capella gallinago*, *Progne subis* and *Vireo olivaceus* have resident and migrant populations: Distribution; description; voice for some: 56.

1326. Young, C. G. 1928-29. A contribution to the ornithology of the coastland of British Guiana. Ibis (12) 4; 748-781; (12) 5: 1-38, 221-261.

PARAGUAY

1327. Babbene, R. 1912. [Contribution to the ornithology of Paraguay]. An. Mus. Nac. Buenos Aires 23: 283-390.

1328. Brodkorb, P. 1938. Further additions to the avifauna of Paraguay. Occ. Pal. Mus. Zool. Univ. Michigan 394: 1-5.
-------: -------: -------: Spec.: 20 new forms are listed including *Dendrocygna autumnalis discolor*, *Tringa solitaria solitaria*, *T. s. cinnamomea*, *Phalaropus flulicarius*, *Chordeiles minor chapmani*, *C. m. minor*, *Riparia riparia riparia*: Distribution: 0.

1329. Laubmann, A. 1930. [Birds. Scientific results of the German Gran-Chaco Expedition]. Stuttgart, Strecker & Schroeder.

1330. ___________. 1939. [Birds of Paraguay. Scientific results of the German Gran Chaco Expedition. Vol. 1.]. Stuttgart, Strecker & Schroder.

1331. ___________. 1940. [Birds of Paraguay. Scientific results of the German Gran-Chaco Expedition. Vol. 2.]. Stuttgart, Strecker & Schroder.

1332. Partridge, W. H. 1953. [Brief notes on the birds of Paraguay]. Hornero 10: 86-88.

1333. Paynter, R. A., Jr. & A. M. G. Caperton. 1977. Ornithological gazetteer of Paraguay. Cambridge, Massachusetts, Harvard Univ.

1334. Schade, F. & R. Masi Pallares. 1967-1969. [Birds of Paraguay]. Rev. Paraguaya de Microb. 2: 72-85; 3: 86-105; 4: 77-96.

1335. Short, L. L., Jr. 1976. Notes on a collection of birds from the Paraguayan Chaco. Amer. Mus. Novit. (2597); 1-16.
-------: -------: "chaco" - low, flat, xeric woodland: Spec.: 180 species reported including *Podilymbus podiceps*, *Butorides striatus*, *Egretta thula*, *Ictinia mississippiensis*, *Accipiter striatus*, *Gallinula chloropus*, *Porphyrula martinica*, *Tringa solitaria*, *Coccyzus americanus*, *C. erythropthlamus*, *Athene cunicularia*, *Asio flammeus*, *Chordeiles minor*, *Pyrocephalus rubinus*, *Myiarchus tyrannulus*, *Troglodytes aedon*, *Vireo (olivaceus) chivi*, *Dolichonyx oryzivorus*, *Parula (americana) pitiayumi*, *Piranga flava*: Distribution; taxonomy: 20.

1336. Steinbacher, J. 1962. [Contribution to the knowledge of birds from Paraguay]. Abhandl. Senckenbergischen Naturf. Gesell. 502: 1-106.

1337. __________. 1968. [Additional contribution on the birds of Paraguay]. Senckenbergiana Biol. 49: 317-365.

PERU

1338. Berlepsch, H. von & L. Stolzman. 1892. [Results of the Peruvian ornithological research by M. Jean Kalinowski]. Proc. Zool. Soc. London, 371-411.

1339. __________ & __________. 1902. On the ornithological researches of M. Jean Kalinowski in central Peru. Proc. Zool. Soc. London 72: 18-60.

1340. Birdseye, C. (ms). Notes on the birds of Peru.

1341. Blancas, F. 1959. [Communities and habitats of Acolla and its environs (Jauaja Prov., Junin) with a species study of the vertebrates]. Mem. Mus. Nat. "Javier Prado" 7.

1342. Bond, J. 1945-1956. Notes on Peruvian birds. Proc. Acad. Nat. Sci., Philadelphia Vols. 97; 99; 103; 106; 107; 108.

1343. Brack Egg, A. 1972. [Catalogue of the birds of Peru]. (publ. in several parts).

1344. Brokaw, H. P. 1976. Birds of Pampa Galeras, Peru. Delmarva Ornith. 11: 26-30.

1345. Carriker, M. A., Jr. 1933. Descriptions of new birds from Peru, with notes on other little-known species. Proc. Acad. Nat. Sci. Philadelphia 85: 1-38.

1346. __________. 1935. Descriptions of new bird species from Peru with critical notes on other little-known species. Proc. Acta. Nat. Sci. Philadelphia 87: 343-359.

1347. Chapman, F. M. 1921. The distribution of bird life in the Urubamba Valley of Peru. Bull. U. S. Natl. Mus. 117.
-------: Apr-Nov 1915; 1 Jul-24 Jul 1916; 3 Apr-25 Apr 1917: Tropical lowland to alpine zones: Spec.; obs.: 28 species of nearctic migrants recorded for the region - Chapman mentions *Empidonax traillii*, *Vireo olivaceus*, *V.* (*olivaceus*) *chivi*, *Dendroica caerulea*, *Wilsonia canadensis*, *Piranga rubra*; also breeding populations of *Nycticorax nycticorax*, *Casmerodius albus*, *Cathartes aura*, *Stelgidopteryx ruficollis*, *Troglodytes* (*aedon*) *musculus*, *Cistothorus platensis*, *Parula* (*americana*) *pitiayumi*; 380 species total recorded from this area: Distribution; taxonomy: 49.

1348. Diamond, J. M. & J. W. Terborgh. 1967. Observations on bird distribution and feeding assemblages along the Rio Callaria, Dept. Loreto, Peru. Wilson Bull. 79: 273-282.
-------: Late Jul-early Aug 1963: Low bushes and tall grasses; shrubs and bushes; forest: Obs.: *Casmerodius albus*, *Mycteria americana*, *Cathartes aura*, *Elanoides forficatus*, *Tringa flavipes*, *T. solitaria*, *Actitis macularia*, *Stelgidopteryx ruficollis*: A survey of species abundance and distribution in essentially undisturbed habitats: 9.

1349. Dorst. J. 1956. [Study of a bird collection from the high Andean Plateaus of southern Peru]. Bull. Mus. Natl. Hist. Nat. Paris Ser. 2,28: 435-445.

1350. ____________. 1957. [Study of a bird collection from the high Andean Plateaus of southern Peru]. Bull. Mus. Natl. Hist. Nat. Paris Ser. 2, 29: 127-129.

1351. ____________. 1962. [Study of a bird collection from the high Andean Plateaus of southern Peru]. Bull. Mus. Natl. Hist. Nat. Paris Ser. 2,34: 427-434.

1352. Dunajewski, A. 1938. [On an interesting bird from Peru (non-Passeriformes)]. Acta Ornith. Zool. Plonici 2: 319-325.

1353. Hellmayr, C. E. 1919. [A contribution to the ornithology of southeastern Peru]. Arch. Naturgesch. 85: Abt. A, 10: 1-131.

1354. Hughes, R. A. 1970. Notes on the birds of the Mollendo district, southwest Peru. Ibis 112: 229-241.
-------: Oct 1953-Sep 1969: Desert; semi-desert; coastal swamp; town gardens; agriculture: Obs.: 149 species recorded, 19 nearctic migrants occur as permanent residents; 31 as transients; one (*Rynchops niger*) may have both transient and resident populations: Distribution; habitat: 5.

1355. ____________. 1976. Additional records of birds from the Mollendo District, Coast of Southwest Peru. Condor 78: 118-119.
-------: -------: -------: Obs.: *Hydranassa tricolor*, *Ixobrychus exilis*, *Buteo platypterus*, *Laterallus jamaicensis*, *Haematopus palliatus*, *Calidris canutus*, *C. minutilla*, *C. mauri*, *Limosa haemastica*, *L. fedoa*, *Limnodromus griseus*, *Chlidonias niger*, *Gelochelidon nilotica*, *Sterna maxima*, *S. sandvicensis*, *S. hirundo*, *Tyrannus tyrannus*, *Vireo olivaceus*, *Setophaga ruticilla*: Distribution: 2.

1356. Koepcke, H. W. 1963. [Bird migration problems in Peru]. Proc. 13th Int. Ornith. Congr. 396-411.

1357. ___________ & M. Koepke. 1953. [The warm, humid desert winds of Peru (Distribution of habitats with particular regard to birds)]. Bonn. Zool. Beitr. 4: 79-146.

1358. ___________ & ___________. 1963. [Wild birds of economic importance in Peru]. Ministerio Agric. Lima.
-------: -------: -------: Spec.; obs.: Roughly 250 species of the 1500 species of birds recorded for Peru are treated as species having economic importance including - *Podilymbus podiceps*, *Anhinga anhinga*, *Egretta thula*, *Casmerodius albus*, *Hydranassa tricolor*, *Butorides striatus*, *Nycticorax nycticorax*, *Mycteria americana*, *Ajaia ajaja*, *Dendrocygna autumnalis*: Distribution; ecology; economic importance: 0.

1359. Koepcke, M. 1954. [An ecological transect in the Andes of Central Peru with special consideration of the birds] Part I. Mem. Mus. Hist. Nat. "Javier Prado" (Lima), no. 3. Various localities in an area 100km wide and 180 km long from the Peruvian Coast at Lima to the crest of the western Andes: -------: -------: Spec.; obs.: 269 species recorded; 31 breeding populations of nearctic migrant species; 33 species occur as transients or residents during the austral summer: habitat associations: 48.

1360. ___________. 1957. [Aspects of the distribution of birds in Peru] Scientia, 4, 3, p. 38-42. Lima.

1361. ___________. 1958. [The birds from Zarate (western slope of the Andes in Central Peru)]. Bonn. Zool. Beitr. 9, 2/4, p. 130-193.

1362. ___________. 1961. Birds of the western slope of the Andes of Peru. Amer. Mus. Novit. 2028.
-------: -------: -------: Spec.; obs.: 76 species recorded including *Charadrius wilsonia*, *Catoptrophorus semipalmatus*, *Limnodromus griseus*, *Larus atricilla*, *Chaetura pelagica*, *Piranga olivacea*, *Dolichonyx oryzivorus*: Distribution: 50.

1363. ___________. 1964. [Birds of the Department of Lima]. Imp. Tall. Graf. Morsom S. A., Lima Peru 126.
-------: -------: -------: Obs.; spec.; lit.: Roughly 300 species are recorded of which 66 are nearctic migrants: Description; habitat; distribution: 47.

1364. ___________. 1970. The birds of the Department of Lima, Peru. Wynnewood, Pennsylvania, Livingston Publ. Co.

1365. Morrison, A. 1939. The birds of the Department of Huancavelica, Peru. Ibis 81: 453-486.

1366. ___________. 1940. [Notes on the birds of Junin]. Bol. Mus. Hist. Nat. "Javier Prado" 12: 84-92.

1367. ___________. 1940. [The birds of Huancavelica Dept.]. Bol. Mus. Hist. Nat. "Javier Prado" 13: 242-246.

1368. ___________. 1948. Notes on the birds of the Pampas River Valley, south Peru. Ibis 90: 119-126.

1369. ___________. 1948. A list of the birds observed at Hacienda Huarapa, Department of Huanuco, Peru. Ibis 90: 126-128.

1370. Murphy, R. C. 1925. Bird islands of Peru. New York.

1371. O'Neill, J. P. 1969. Distributional notes on the birds of Peru, including twelve species previously unreported from the Republic. Occ. Pap. Mus. Zool. Louisiana St. Univ. 37: 1-11.
-------; Playa Manacoma, Dept. Lima, Peru: -------; 18 May 1968: -------; flooded cornfield: Spec.: *Limosa haemastica*: Distribution: 9.

1372. ___________. 1974. The birds of Balta, a Peruvian dry tropical forest locality with an analysis of their origins and ecological relationships. Ph.D. Thesis, Baton Rouge, Louisiana St. Univ.

1373. ___________ & D. L. Pearson. 1974. [A preliminary study of the birds of Yarinacocha, Department of Loreto, Peru]. Peru. Publ. Mus. Hist. Nat. "Javier Prado" Ser. A, Zool. 25: 1-13.

1374. Parker, T. A., III, S. A. Parker & M. A. Plenge. 1978. A checklist of Peruvian birds. Privately printed. Available from S. Parker, 2350 E. 2nd St., Tucson, Arizona.

1375. Pearson, D. L. & M. A. Plenge. 1974. Puna bird species on the coast of Peru. Auk 91: 626-631.

1376. Peters, J. L. & J. A. Griswold, Jr. 1943. Birds of the Harvard Peruvian Expedition. Bull. Mus. Comp. Zool. 92: 96-99.

1377. Plenge, M. A. 1974. Notes on some birds in west-central Peru. Condor 76: 326-330.
Dept. Lima; Dept. Ancash; Dept. Ica, Peru: -------: -------: Obs.; spec.: 24 species recorded including *Heteroscelus incanum*, *Catoptrophorus semipalmatus*, *Calidris alba*, *Limosa haemastica*, *Larus pipixcan* (including one concentration of one million birds!), *Chlidonias niger*, *Gelochelidon nilotica*, *Chaetura pelagica*, *Tyrannus tyrannus*, *Empidonax traillii*, *Riparia riparia*, *Petrochelidon pyrrhonota*, *Catharus ustulatus*, *Setophaga ruticilla*: Distribution: 26.

1378. Roe, N. A. & W. E. Rees. 1979. Notes on Puna avifauna of Azangaro Province Department of Puna, southern Peru. Auk 96: 475-482.
-------: 6-17 Jun 1975: Grassland; marsh: Obs.: 83 species recorded including *Casmerodius albus*, *Nycticorax nycticorax*, *Anas cyanoptera*, *Oxyura jamaicensis*, *Cathartes aura*, *Falco sparverius*, *Gallinula chloropus*, *Fulica americana*, *Tringa melanoleuca*, *T. flavipes*, *Calidris bairdii*, *C. melanotos*, *Capella gallinago*, *Athene cunicularia*, *Troglodytes aedon*. Comments on altitudinal migration; distribution: 26.

1379. Rospigliosi, V. C. 1937-1940. [Ornithology of Peru]. Bol. Mus. Hist. Nat. "Javier Prado" Nos. 2-15.

1380. Sclater, P. L. 1873. On Peruvian birds collected by Mr. Whitely, part 7. Proc. Zool. Soc. London, 779-781.

1381. ____________ & O. C. Salvin. 1866. Catalogue of birds collected by Mr. E. Bartlett on the River Ucayali, eastern Peru, with notes and descriptions of new species. Proc. Zool. Soc. London, 175-201.

1382. ____________ & ____________. 1867. Catalogue of birds collected by Mr. E. Bartlett on the river Huallaga, eastern Peru, with notes and descriptions of new species. Proc. Zool. Soc. London 748-759.

1383. ____________ & ____________. 1868. On Peruvian birds collected by Mr. Whitely. Part 2. Proc. Zool. Soc. London, 173-178.

1384. ____________ & ____________. 1868. On Peruvian birds collected by Mr. Whitely, Part 4. Proc. Zool. Soc. London, 151-158.

1385. ____________ & ____________. 1873. On the birds of eastern Peru. Proc. Zool. Soc. London, 252-311.

1386. Short, L. L., Jr. & J. J. Morony, Jr. 1969. Notes on some birds of central Peru. Bull. British Ornith. Club 89: 112-115.

1387. Taczanowski, L. 1884, 1886. [Ornithology of Peru]. 3 Vol. Rennes.

1388. Tovar, S. H. 1968. [Areas of reproduction and distribution of Peruvian littoral marine birds]. Bol. Inst. Mar, Peru 1: 525-546.

1389. ____________. 1969. [New records of marine birds in Bahia de La Independencia y Pisco]. Paper Presented at 2nd Congr. Nac. Biol., Lima Nov, 1969 (Unpubl.).

1390. Traylor, M. A., Jr. 1958. Birds of northeastern Peru. Fieldiana, Zool. 35: 87-141.

1391. Vaurie, C. 1972. An ornithological gazetteer of Peru. (Based on information compiled by J. T. Zimmer). Amer. Mus. Novit. 2491: 1-36.

1392. Zimmer, J. T. 1930. Birds of teh Marshall Fiedl Peruvian Expedition. 1922-1923. Field Mus. Nat. Hist., Zool. Ser. 17: 231-493.

1393. ____________. 1931-1937. Studies of Peruvian birds: Revision of the families Cotingidae, Bucconidae, Dendrocolaptidae, Furnariidae, Formicariidae, Conophagidae, Pipridae, Sylviidae. Amer. Mus. Novit. (Unnumbered Index, 30 Jul 1937).

1394. ____________. 1937-1945. Studies of Peruvian birds: Revision of Picidae, Rhynocryptidae, Tyrannidae, Vireonidae, Coerebidae, Thraupidae, Formicariidae, Sylviidae. Amer. Mus. Novit. (Unnumbered Index, 31 Dec 1945).

1395. ____________. 1947-1955. Studies of Peruvian birds: Revision of Trogonidae, Parulidae, Trochilidae, Apodidae, Motacillidae, Thraupidae. Amer. Mus. Novit. (Unnumbered Index, 1957).

SURINAM

1396. Bangs, O. & T. E. Penard. 1918. Notes on a collection of Surinam birds. Bull. Mus. Comp. Zool. 62(2): 23-93.

1397. Blake, E. R. 1961. New bird records from Surinam. Ardea 49: 178-183.

1398. ___________. 1963. The birds of southern Surinam. Ardea 51: 53-72.
-------: 1960-1962: -------: Spec.: 268 species recorded including *Coragyps atratus*, *Actitis macularia*, *Capella gallinago*, *Vireo olivaceus*, *Dendroica petechia*: Distribution: Reproductive periods; taxonomy: 13.

1399. Davis, T. H. Additions to the birds of Suriname (Continental Birdlife). (In Press).

1400. Haverschmidt, F. 1948. Bird weights from Surinam. Wilson Bull. 60: 230-239.

1401. ___________. 1950. Bird records from Surinam. Auk 67: 217-221.

1402. ___________. 1952. More bird weights from Surinam. Wilson Bull. 64: 234-241.

1403. ___________. 1955. North American shore birds in Surinam. Condor 57: 366-368.

1404. ___________. 1955. List of the birds of Surinam. Publ. Found. Sci. Res. in Surinam and the Netherlands Antilles 13: 1-153.

1405. ___________. 1957. Bird records from Surinam (III). Ardea 45: 84-89.

1406. ___________. 1968. The birds of Surinam. Edinburgh and London. Oliver & Boyd Ltd.

1407. ___________. 1972. Bird records from Surinam. Bull. British Ornith. Club 92: 49-53.

1408. Hellebrekers, W. ph. J. 1942. Revision of the Penard zoological collection from Surinam. Zool. Medeelingen 24: 240-275.

1409. Humphrey, P. S. & R. Freund. 1962. Notes on a collection of birds from Surinam. Postilla (Yale Peabody Mus.), 60: 1-11.
Kaysergebrgte Airstrip, Sipaliwini Airstrip and Paru Savannah, Surinam: 18 Nov-17 Dec 1961: -------: Spec.: Of 59 species collected, only one, *Hirundo rustica*, was a nearctic migrant: Distribution: 4.

1410. Mees, G. F. 1968. Some varieties of birds new to the avifauna of Surinam. Gerfaut 58: 101-107.

1411. Morrison, R. I. G. & A. L. Spaans. 1979. National Geographic mini-expedition to Surinam. Waser Study Group Bulletin 26: 37-41.

1412. Renssen, T. A. 1974. Twelve bird species new for Surinam. Ardea 62: 118-122.

1413. ___________. 1974. New breeding records from Surinam. Ardea 62: 123-127.
-------: Nov 1967-Mar 1970: -------: Obs.; spec.: 10 species recorded breeding including - *Gallinula chloropus*, *Charadrius wilsonia*: Distribution: 3.

1414. ___________. 1974. 12 bird species new for Surinam. Ardea 62: 118-122.
-------; Paramaribo, Surinam: -------; 29 Nov 1968: -------; flooded canefield: Obs.: 12 species recorded including *Aytbya affinis*: Distribution: 4.

1415. Scharringa, C. J. G. 1974. Ornithological observations from the Coeroeni airstrip, Surinam. Ardea 62:219-225.

1416. Schulz, J. P. 1977. Birds of prey in Surinam. Pp. 187-188 *in* World conf. on birds of prey. (R. D. Chancellor, Ed.) International Council for Bird Preservation:

1417. Voous, K. H. Predation potential in birds of prey from Surinam. Ardea 57: 117-148.
-------: -------: Lit.; spec.; obs.: 40 species considered including *Elanoides forficatus*: -------: 28.

URUGUAY

1418. Alvarez, T. 1933. [Biological observations on the birds of Uruguay]. An. Mus. Hist. Nat. Montevideo, 2nd Ser. 4(1): 1-50.

1419. ___________. 1934. [Ecology and biology of Uruguayan birds. Habits. Diet. Their utility from an agricultural point of view]. 3rd ed. Montevideo.

1420. Aplin, O. V. 1894. On the birds of Uruguay, with an introduction and notes by P. L. Sclater. Ibis 6: 149-215.
-------: 19 Oct 1892-28 May 1893: Prairie; thorn forest; riparian forest ("monte"): Spec.; obs.: 93 species were recorded; 22 species of nearctic migrants of which 15 had breeding populations; comments on austral spring and fall "breeding" behavior in *Capella gallinago*: Abundance; natural history: 4.

1421. Arrendondo, H. 1953. [Ornithology of Uruguay]. Imp. Nac. Montevideo.

1422. Barattini, L. P. 1945. [The birds of Paysundu]. An. Lic. Dep. Paysandu 1: 1-60.

1423. ___________ & R. Escalante. 1958. [The indigenous fauna. Catalogue of Uruguayan birds]. Pt. 1. Falconiformes. Conc. Dep. Montevideo, Mus. Damaso A. Larranaga.

1424. ____________ & ____________. 1971. [The indigenous fauna. Catalogue of Uruguayan birds]. Pt. 2. Anseriformes. Conc. Dep. Montevideo, Mus. Damaso A. Larranaga.

1425. Barlow, J. C. & J. P. Cuello. 1964. New records of Uruguayan birds. Condor 66: 516-517.

1426. Barrows, W. B. 1883. Birds of the lower Uruguay. Bull. Nuttall Ornith. Club 8: 82-94, 128-143, 198-212.

1427. ____________. 1884. Birds of the lower Uruguay. Auk 1: 20-30, 109-113, 270-278, 313-319.

1428. Brownell, R. J., J. Olazarri & F. Achaval. 1973. Bird observations of Uruguay. Antarctic J. U. S. 8.

1429. Cuello, J. 1969. [Birds of Uruguay]. Editorial "Nuestra Tierra", Montevideo 13: 1-68.

1430. ____________. 1975. [Birds of Uruguay]. Com. Zool. Mus. Hist. Nat. Montevideo 10: 1-27.

-------: -------: -------: Spec.: *Falco peregrinus*, *Charadrius semipalmatus*, *Actitis macularia*, *Athene cunicularia*, *Chordeiles minor*, *Riparia riparia*, *Troglodytes aedon*, *Dendroica striata*: Distribution; taxonomy: 69.

1431. ____________. 1979. Situation in Uruguay, Pp. 28-29 *in* Organization of American States (OAS) technical meeting on conservation of migratory animals of the Western Hemisphere and their ecosystems. Washington, D. C., OAS S G, Ser. P. III, 3.

1432. ____________ & E. Gerzenstein. 1962. [The birds of Uruguay]. Com. Zool. Mus. Hist. Nat. Montevido, 6: 1-191.

-------: -------: -------: Spec.: Obs.: Lit.: 54 species of nearctic migrants are recorded from Uruguay, 27 of which have resident populations in the country: Distribution; migration nidification: 150.

1433. Dalgeish, J. J. 1881. Notes on a collection of birds and eggs from Central Uruguay. P. Phys. Soc., Edinburgh, 6: 232-254.

1434. ____________. 1883-1884. Notes on a second collection of birds and eggs from Central Uruguay. P. Phys. Soc., Edinburgh 8: 77-78.

1435. Devincenzi, G. H. 1925-1928. [Birds of Uruguay]. An. Mus. Hist. Nat. Montevideo, Ser. 2, 1929, Ser. 2: 1-44, 129-200, 215-264, 339-410.

1436. Escalante, R. 1959. Some records of oceanic birds in Uruguay. Condor 61:158-159.

1437. ____________. 1962. Frequency of occurrence of some seabirds in Uruguay. Condor 64: 510-512.

1438. ____________. 1965. [Notes on the Osprey and *Phaetusa simplex* in Uruguay]. Hornero 10: 277-278.

1439. Gerzenstein, E. 1965. [Birds of the coasts and rivers of Uruguay]. Hornero 10: 235-246.

1440. ___________. 1965. [New birds for Uruguay]. Hornero 10: 280-282.

1441. ___________. 1967. [New data on Uruguayan avifaura]. Hornero 10: 454-458.

1442. ___________ & J. Chebataroft. 1963. [Notes concerning distribution and migration of birds in Uruguay].
-------: -------: -------: Spec.; obs.; lit.; 60% of the avifauna is presumed sedentary; 25-30 species of summering breeding birds from the tropics; 25-30 summering, nonbreeding birds - mostly from North America; 20-30 species that breed in the antarctic but winter (Apr. - Sep.) in Uruguay; 20 or 30 species that occur as occasional visitors; total Uruguaian avifauna is 342 species: avitauna status: 30.

1443. ___________ & J. Chebataroff. 1965. [Notes on the distribution and migration of birds in Uruguay]. Ana. Seg. Congr. Lat. Amer. Zoología 2: 297=304.

1444. ___________ & J. I. Munoa. 1960. [Birds collected and observed in Espinillar (Dept. Salto)]. Com. Zool. Mus. Hist. Nat. Montevideo, Vol. IV (77): 1-14.

1445. Gibson, E. 1885. Notes on the birds of Paysandú, Republic of Uruguay. Ibis, 5(3): 275-283.

1445. Gore, M. E. J. & A. R. M. Gepp. 1978. [The birds of Uruguay]. Mosca Hnos., Montevideo, Uruguay.
-------: -------: scrub; dry forest; gallery forest; marsh; lakes; ocean: Spec.; obs.; lit.: 376 species recorded for the country including 71 nearctic migrants: Distribution; status; habits; migration; conservation; habitats: 111.

1447. Hubbard, J. P. 1973. [Catalogue of Uruguayan birds (review)]. Auk 90: 936.

1448. Palerm, E. 1973. [Presence in Uruguay of the Spotted Sandpiper, *Actitis macularia* (L.) (Charadriiformes, Scolopacidae)]. Bol. Soc. Zool. Uruguay 2: 7-8.

1449. ___________. 1973. [A new subspecies of House Wren for Uruguay. *Troglodytes aedon chilensis* Lesson, 1830 (Passeriformes, Troglodytidae)]. Rev. Bol. Uruguay 1: 175-177.

1450. Saccone, R. 1962. [Contribution to the knowledge of Uruguayan Charadriiformes]. Com. leida en la Soc. Zool. Uruguay (23 Mar 1962) (Unpubl).

1451. Teague, G. E. 1955. [Birds of the Uruguayan littoral]. Com. Zool. Mus. Hist. Nat. Montevideo 4: 1-58.

1452. Tremoleras, J. 1920. [List of Uruguayan birds]. Hornero 2: 10-25.

1453. ___________. 1927. [Additions and corrections to the "List of Uruguayan birds]. Hornero 4: 16-22.

1454. Vaz-Ferreira, R. 1950. [Observations on the Isla de Lobos]. Rev. Fac. Human. Cien. 5: 145-176.

1455. ___________. 1952. [Observations on the Islas de Torres and de Castillo Grande]. Rev. Fac. Human. Cien. 9: 237-258.

1456. ___________ & E. Gerzenstein. 1961. [New or little-known birds of the eastern Republic of Uruguay]. Com. Zool. Mus. Hist. Nat. Montevideo 5: 1-65.

VENEZUELA

1457. Altman, A. & C. Parrish. 1978. Sight records of Wilson's Phalarope, Ruff, and other shorebirds from Venezuela. Amer. Birds 32: 309-310.

Refugio de Fauna Silvestre de Cuare, Chichiriviche, Estado Falcon, Venezuela: fall, 1976; fall 1977: Coastal lagoon and freshwater pools: Obs.: *Charadrius alexandrinus*, *Tringa melanoleuca*, *T. flavipes*, *Calidris minutilla*, *C. canutus*, *C. pusilla*, *Limosa haemastica*, *Steganopus tricolor*: Survey: 0.

1458. Aveledo, H. 1957. [Birds of the region of Rio Guasare]. Bol. Soc. Venezuela Cien. Nat., No. 88, Septiembre: 73-100.

1459. ___________. 1961. [List of birds collected at the Llanos Biology station]. Bol. Soc. Venezuela Cien. Nat., No. 100: 213-225.

1460. Barnes, V., Jr. 1940. [The birds of Paraguana Peninsula with systematic notes by W. H. Phelps]. Bol. Soc. Venezolana Cienc. Nat. 46: 1-33.

1461. Beebe, W. 1909. An ornithological reconnaissance of northeastern Venezuela. New York Zool. Soc., Zoologica 1: 67-114.

1462. ___________. 1925. Studies of a tropical jungle. Zoologica 6(1).

1463. ___________. 1947. Avian migration at Rancho Grande in north-central Venezuela. Zoologica 32: 153-168.

------- (elev. 1,100m): 1945-1946: montane cloud forest: Obs.; spec.: 36 species of nearctic migrants were observed or collected as they traversed a mountain pass in apparent migratory flight, individuals of some tropical resident species were also recorded - these showed heavy fat and empty guts just as is found in species considered to be regular transients: -------:

1464. Bellizzia, A., C. Carmona & M. Grateral. 1969. Geological survey of the Islas-Monges-del-sur Los-Monjes Archipelago Venezuela. Bol. Geol. 10: 225-234.

1465. Berlepsch, H. von & E. Hartert. 1902. On the birds of the Orinoco region. Novit. Zool. 9: 1-134.

1466. Carvajal, J. R. 1966. [Ecological studies of the littoral lagoons near the city of Cumana, Venezuela]. Bol. Inst. Oceanografico, Univ. Oriente 4: 266-311.

1467. Chapman, F. M. 1925. Remarks on the life zones of northeastern Venezuela with descriptions of new species of birds. Amer. Mus. Novit. 191: 1-15.

1468. ____________. 1929. Descriptions of new birds from Mt. Roraima. Amer. Mus. Novit. 341: 1-7.

1469. ____________. 1931. The upper zonal bird-life of Mts. Roraima and Duida. Bull. Amer. Mus. Nat. Hist. 48: 1-756.

1470. ____________. 1931. The upper zonal bird-life of Mts. Roraima and Duida. Bull. Amer. Mus. Nat. Hist. 63: 1-135.

1471. ____________. 1939. The upper zonal birds of Mt. Auyan-tepui, Venezuela. Am. Mus. Novit. 1051.

1472. Cherrie, G. K. 1916. A contribution to the ornithology of the Orinoco region. Sci. Bull. Mus. Brooklyn Inst. Arts Sci. 2: 133a-374.

1473. Delacour, J. 1923. Notes on the birds of Guarico and Apure in Venezuela. Ibis 1923: 136-150.

1474. de Visscher, M. N. 1977. A mixed colony of egrets and magnificent frigate-birds in Venezuela. Gerfaut. 67: 203-224.

Morrocoy National Park, west coast of Venezuela: Nov 1975 - Oct 1976; Swamp, mangrove: Obs., spec.: Pelecanus occidentalis, Ardea herodias, Casmerodius albus, Egretta thula, Hydranassa tricolor, Florida caerulea, Bubulcus ibis, Nycticrox nycticorax: Factors involved in colony formation and intraspecific synchronization of breeding; breeding biology; habitat use: 13.

1475. Fernandez Y., A. 1946. [The Venezuelan avifauna and their distribution in altitudinal zones]. Acta Venezolana 1(3): 1-8.

1476. ____________ & F. L. Benedetti. 1940. [The birds of Margarita with systematic and historical notes by W. H. Phelps]. Bol. Soc. Venezolana Cienc. Nat. 43: 91-132.

1477. Friedmann, H. & F. D. Smith, Jr. 1950. A contribution of the ornithology of northeastern Venezuela. Proc. U. S. Natl. Mus. 100(3268): 411-538.

1478. ____________ & ____________. 1955. A further contribution to the ornithology of northeastern Venezuela. Proc. U. S. Natl. Mus. 104: 463-524.

-------: -------: Seasonally deciduous forest, savannah: Spec.; obs.: 283 forms are treated; 24 species of nearctic migrants breed in the region; 24 species occur only as transients or winter residents; Capella gallinago, Vireo olivaceus, and Dendroica petechia have both resident and migrant populations in the area; Pandion haliaetus may breed in Venezuela: Seasonal occurrence; breeding seasons; taxonomy: 20.

1479. Gilliard, E. T. 1941. The birds of Mt. Auyan-tepui, Venezuela. Bull. Amer. Mus. Nat. Hist. 77: 439-508.

1480. ___________. 1959. Notes on some birds of northern Venezuela. Amer. Mus. Novit. 1927: 1-33.

1481. Gines, W. & R. Aveledo. 1958. [Game birds of Venezuela]. Caracas.
-------: -------: -------: Spec., Obs.; B-R: *Dendrocygna autumnalis*, *D. bicolor*, *Aythya affinis*, *A. collaris*, *Anas acuta*, *A. cyanoptera*, *A. discors*, *Capella gallinago*: Description; abundance; distribution (maps); ecology: 0.

1482. ___________, ___________, A. Pons, G. Yepez T. & R. Munoz. 1953. [List and commentary on birds collected in the region]. Pp. 225-277. in: La Region de Perija y sus Habitantes. II Congreso Cienc. Nat. Afines, cuaderno no. 6, Caracas.

1483. ___________ & G. Yepez T. 1960. [Aspects of the natural history of Las Aves Islands, Venezuela]. Mem. Soc. Cienc. Nat. La Salle 20(55): 5-53.

1484. Le Croy, M. 1976. Bird observations in Los Roques, Venezuela. Amer. Mus. Novit. 2599: 1-30.
Francisquí, Los Roques, Venezuela: May-Jul 1973: Saltwort, mangrove, lagoon; beach: Spec.; obs.: 37 species recorded, 22 nearctic migrants some of which have breeding populations on the island including - *Sterna hirundo*, *S. albifrons*, *Larus atricilla*, *Sterna maxima*: Distribution; reproductive biology: 31.

1485. Medina, P. G. 1957. [On the avifauna of "El Paito" and the nesting of *Galbula ruficauda*]. Bol. Mus. Cienc. Nat. (Caracas, Venezuela) 1 (July-Dec. 1955): 196-200.

1486. ___________. 1972. [Cuare Wildlife Refugee in Chichiriviche]. Defenza de la Naturaleza (Ven.) #5.

1487. Meyer de Schauensee, R. & W. H. Phelps, Jr. 1978. A guide to the birds of Venezuela. Princeton, N. J., Princeton Univ. Press.

1488. Munoz-Tebar B., R. 1950. [A sandpiper and a gull added to the avifauna of Venezuela]. Mem. Soc. Cienn. Nat. La Salle, Caracas, 10(27): 189-192.

1489. Osgood, W. H. & B. Conover. 1922. Game birds from northwestern Venezuela. Field Mus. Nat. Hist. 210, zool. ser. 12: 19-47.

1490. Peberdy, P. S. 1941. Ornithological collection from Mt. Roraima. Repts. British Guiana Mus. and Georgetown Pub. Library, 30-37.

1491. Phelps, K. D. 1954. [Venezuelan birds. 100 of the best known]. Creole Petrol. Corp., Caracas. 1-103.

1492. Phelps, W. H. 1897. Birds observed on a collecting trip to Bermudez, Venezuela. Auk 14: 357-371.

1493. ___________. 1943. [The birds of Perija]. Bol. Soc. Venezolana Cien. Nat. 12: 1-427.

1494. ___________. 1944. [The birds of Perija]. Bol. Soc. Venezolana Cienc. Nat. 8: 265-338.

1495. ___________ & W. H. Phelps, Jr. 1950. [List of the birds of Venezuela with their distribution]. Part 2 (Passeriformes), 1st Ed. Bol. Soc. Venezolana Cienc. Nat. 12: 1-427.

1496. ___________ & ___________. 1951. [The birds of Los Roques and Las Aves Islands and description of a new Mangrove Warbler]. Bol. Soc. Venezolana Cien. Nat., Caracas 76: 7-30.

1497. ___________ & ___________. 1952. Nine new subspecies of birds from Venezuela. Proc. Biol. Soc. Washington 65: 39-54.

1498. ___________ & ___________. 1953. Eight new birds and thirty-three extensions of ranges to Venezuela. Proc. Biol. Soc. Washington 66(10): 125-146.

1499. ___________ & ___________. 1957. [The birds of Las Aves Island, Venezuela]. Bol. Soc. Venezolana Cien. Nat. 88: 63-72.

1500. ___________ & ___________. 1958. [The birds of Isla de Patos with some historical and geological documents of the island]. Bol. Soc. Venezolana Cien. Nat. 92: 105-133.

1501. ___________ & ___________. 1958. [List of the birds of Venezuela with their distribution]. Vol. 1, pt. 1. No Passeriformes. Bol. Soc. Venezolana Cien. Nat. 19: 1-317.

-------: -------: -------: Spec.; obs.; lit.: of 1,291 species recorded for Venezuela, 569 are non passerines; of these 39 are nearctic migrants: Distribution; taxonomy; habitat: 98.

1502. ___________ & ___________. 1959. [The birds of La Orchilla Island]. Bol. Soc. Venezolana Cien. Nat. 93: 252-266.

1503. ___________ & ___________. 1959. [The nesting of marine birds in Los Roques Archipelago]. Bol. Soc. Venezolana Cien. Nat., Caracas, no. 94, pp. 325-336.

1504. ___________ & ___________. 1963. [List of the birds of Venezuela with their distribution]. Vol. 1, pt. 2. Passeriformes. Bol. Soc. Venezolana Cien. Nat. 24: 1-479.

-------: -------: -------; Spec.; obs.; lit: 722 passerine species are recorded for Venezuela of which 53 are nearctic migrants: Distribution; taxonomy; habitat: 112.

1505. ___________ & ___________. 1965. [List of the birds of the Cerro de la Neblina, Venezuela with notes on their discovery]. Bol. Soc. Venezolana Cienc. Nat. 26(109): 11-35.

1506. Phelps, W. H., Jr. 1948. [The birds of Blanquilla Island and islets of El Fondeadero and La Horquilla of Los Hermanos Archipelago]. Bol. Soc. Venezolana Cien. Nat. 71: 85-118.

1507. ___________. 1977. [Birds collected in the tablelands of Sarisarñima and Jaua during three expeditions to the Jaua massif, Bolivar State. Descriptions of the new subspecies].

1508. ___________. 1979. Migratory birds of Venezuela, Pp. 36-37 in Organization of American States (OAS) technical meeting on conservation of migratory animals of the Western Hemisphere and their ecosystems. Washington, D. C., OAS S G, Ser. P. III. 3.

1509. Rohl, E. 1945. [Descriptive fauna of Venezuela]. Tipografia Americana. Caracas, pp. I-XXXVI, 1-495.

1510. Schafer, E. & W. H. Phelps. 1954. [The birds of the "Henri Pittier National Park (Rancho Grande) and their ecological functions]. Bol. Soc. Venezolana Cienc. Nat. 16(83): 3-168.

1511. Sclater, P. L. & O. Salvin. 1868. On Venezuelan birds collected by Mr. A. Goering. Proc. Zool. Soc. London 165-178, 626-632.

1512. Skutch, A. F. 1968. The nesting of some Venezuelan birds. Condor 70: 66-82.

1513. Thomas, B. T. 1979. Birds of a ranch in the llanos of Venezuela. Pp. 213-232. in: Vertebrate ecology in the northern Neotropics (J. F. Eisenberg, ed.), Washington, D. C. Smithsonian Inst. Press.

08° 31' N 67° 35' W, Venezuela: May 1972-Nov 1978: palm savannah; gallery forest: Obs.: 243 species recorded including 50 nearctic migrants: Distribution; abundance; habitat: 16.

1514. Vuilleumier, F. & D. N. Ewert. 1978. The distribution of birds in Venezuelan paramos. Bull. Amer. Mus. Nat. Hist. 162: 47-90.

1515. Wetmore, A. 1939. Observation on the birds of northern Venezuela. Proc. U. S. Natl. Mus. 87: 173-260.

-------: 16 Oct-24 Nov 1937: -------: Spec.; obs.: 230 species recorded including - 42 nearctic migrants: Distribution; some comments on migration: 83.

1516. Yelpez, A. F. & F. L. Benedetti. 1940. [The birds of Margarita]. Bol. Soc. Venezolana Cien. Nat. 43: 91-132.

1517. Yepez T., G. 1957. [Birds collected for the first time in Margarita]. Mem. Soc. Cienc. Nat. La Salle 17(48): 156-159.

1518. ____________. 1958. [Notes on the birds of the islands of Coche and Cubagua]. Mem. Soc. Cien. Nat. La Salle 18(50): 90.

1519. ____________. 1963. [Ornithology of the Margarita Islands, Coche and Cubagua (Venezuela)]. Part 2. Mem. Soc. Cienc. Nat. La Salle 23: 167-249.

1520. Zimmer, J. T. & W. H. Phelps. 1948. Three new subspecies of birds from Venezuela. Amer. Mus. Novit. 1373: 1-7.

TAXONOMIC CATEGORIES

Sequence of Orders, Families, Genera and Species follows AOU Checklist, 5th Ed. and Supplements (37, 38, 39, 40).

PODICIPEDIFORMES

PODICIPEDIDAE

Podiceps _nigricollis_

1521. Dickerman, R. W. 1969. Nesting records of the Eared Grebe in Mexico. Auk 86: 144.

Lake Alchichica and Lake Preciosa, Puebla; Lake Santa Maria de Oro, Nayarit; and Lake Magdelena, Jalisco, Mexico: -------: -------: Spec.: Nesting localities for permanent resident populations of _Podiceps_ _nigricollis_. Specimens appear morphologically the same as members of the North American breeding population (_P_. _n_. _californicus_): 3.

Aechmophorus _occidentalis_

1522. Dickerman, R. W. 1963. The Grebe _Aechmophorus_ _occidentalis_ _clarkii_ as a nesting bird of the Mexican Plateau. Condor 65: 66-67.

-------: -------: Lake Chapala: Spec.; obs.: -------: Distribution: 6.

1523. ___________. 1973. Further notes on the Western Grebe in Mexico. Condor 75: 131-132.

Baja California, Nayarit, Guerrero, Puebla, San Luis Potosi: -------: -------: Spec.: Breeding distribution and taxonomic consideration: 3.

1524. Oberholser, H. C. 1919. _Aechmophorus_ _occidentalis_ in Lower California. Condor 21: 128.

Podilymbus _podiceps_

1525. Borrero, J. I. 1972. Notes on the feeding habits and reproductive behavior of the Pied-billed Grebe _Podilymbus_ _podiceps_ (Aves) in Colombia. Bol. Soc. Venezolana Cien. Nat. 29: 477-486.

Valle del Cauca, Cali, Valle, Colombia: 1 Apr 1970 - 9 Jan 1971: Lake: Obs.: -------: Notes on tropical breeding biology and timing of breeding cycle: 16.

1526. Van Tyne, J. 1937. South American Pied-billed Grebe in the Canal Zone. Auk 54: 379.

PELECANIFORMES

1527. van Tets, G. F. 1965. A comparative study of some social communication patterns in the Pelecaniformes. Ornith. Monogr. 2.

PELECANIDAE

Pelecanus occidentalis

1528. Orians, G. H. 1969. Age and hunting success in the Brown Pelican (Pelecanus occidentalis). Anim. Behav. 17: 316-319.

1529. Schreiber, R. W. 1977. Maintenance behavior and communication in the Brown Pelican. Ornith. Monogr. 22.

1530. ___________. 1980. The Brown Pelican (Pelecanus occidentalis). Los Angeles, private publisher.

1531. Wetmore, A. 1945. A review of the forms of the Brown Pelecan. Auk 62: 577-586.

PHALACROCORACIDAE

Phalacrocorax olivaceus

1532. Daneri, C. 1960. [Breeding of the Olivaceus Cormorant (Phalacrocorax olivaceus olivaceus in Puerto Deseado]. Physis 21: 273-277.

1533. Morrison, M. L., R. D. Slack & E. Shanley, Jr. 1978. Age and foraging ability relationships of Olivaceous Cormorants. Wilson Bull. 90: 414-422.

ANHINGIDAE

1534. Burger, J., L. M. Miller & D. C. Hahn. 1978. Behavior and sex roles of nesting Anhingas at San Blas, Mexico. Wilson Bull. 90: 359-375.

CICONIIFORMES

ARDEIDAE

1535. Baudouin-Bodin, J. 1960. [Herons banded at the Great Lakes, recaptured in the Antilles]. Oiseau R.F.O. 30: 270.

1536. Coffey, B. B., Jr. 1943. Post-juvenal migration of herons. Bird-Banding 14: 34-39.

South-central USA; Mexico; Central America; West Indies; northern South America: 1935-1941: -------: B-R: Anhinga anhinga, Florida caerulea, Casmerodius albus, Egretta thula, Nyctanassa violacea: members of these species banded in Mississippi heronries were recovered in post-breeding flights into the central USA and on wintering grounds in Mexico, Belize, Honduras, Panama, Colombia, and the island of Guadeloupe, West Indies; total banded = 9,876 birds: Migration; distribution: 0.

1537. ___________. 1948. Southward migration of herons. Bird-Banding 19: 1-5.

-------: 1935-1942: -------: B-R: Recovery data on Anhinga anhinga, Casmerodius albus, Egretta thula, Florida caerulea banded in Greenville and Moon Lake, Mississippi show that members of these species winter along the east coast of Mexico and Central America, western Cuba, and northern South America: Migration routes; distribution: 1.

1538. Cooke, W. W. 1913. Distribution and migration of North American herons and their allies. U. S. Dept. Agric. Biol. Surv. Bull. 45: 1-70.

Western Hemisphere: -------: -------: Lit.: 32 species are considered, 19 of which are at least partially migratory: Distribution; conservation; abundance; migration: 0.

1539. Loftin, H. & S. L. Olson. 1966. Florida herons recovered in Caribbean localities. Florida Nat. 39: 119.

-------: -------: -------: B-R: Birds banded at Apalachee Bay, Wakulla, Co., Fla., recovered in the neotropics including Florida caerulea, Egretta thula, Hydranassa tricolor: Migration: 1.

1540. McFarlane, R. W. 1975. Heron expansion in the Atacama Desert. Auk 92: 378-380.

Northern Tarapaca, Chile: Apr 1972-Jul 1973: Riparian and coastal aquatic habitats: Obs.: Egretta thula, Casmerodius albus, Florida caerulea, Nycticorax nycticorax: Distribution; habits: 10.

1541. Olivares, A. & J. C. Hernandez. 1961. [Two new herons for Colombia]. Contr. Mus. Hist. Nat. Univ. Cauca 6:

Ardea herodias

1542. Cooke, M. T. 1946. The winter range of the Great Blue Heron. Auk 63: 254.

-------: -------: -------: B-R: -------: Recaptures from Cuba (6); Jamaica (1); Oaxaca, Mexico (1) Tampico, Tamaulipas, Mexico (1); Yucatan, Mexico (1); British Honduras (3); Guatemala (1); Panama (1): 2.

1543. Mayr, E. 1956. Is the Great White Heron a good species? Auk 73: 71-77.

1544. Oberholser, H. C. 1912. A revision of the forms of the Great Blue Heron (Ardea herodias Linnaeus). Proc. U. S. Natl. Mus. 43: 531-559.

1545. Owen, D. F. 1959. Mortality of the Great Blue Heron as shown by banding recoveries. Auk 76: 464-470.

1546. Thayer, J. E. & O. Bangs. 1912. A new race of Great Blue Heron from Espiritu Santo Island, Lower California. Proc. New England Zool. Club 4: 83-84.

Butorides striatus (includes *virescens*)

1547. Dickerman, R. W. & T. Gonzalo Gaviño. 1969. Studies of a nesting colony of Green Herons in San-Blas, Nayarit, Mexico. Living Bird 8: 95-111.
-------: Sep 1961; Oct 1962; Oct 1963; May, Jul-Oct, 1964: Mangrove: Obs.; spec.; exp.: *Anhinga anhinga*, *Butorides virescens*, *Florida caerulea*, *Casmerodius albus*, *Egretta thula*, *Hydranassa tricolor*, *Nyticorax nycticorax*, *Nyctanassa violacea*, *Eudocimus albus*: Breeding biology; distribution: 26.

1548. Gonzalo Gaviño, T. 1966. [Breeding in the Green Heron, *Butorides virescens* in San Blas]. Professional Thesis. Facultad de Ciencias, Univ. Nacional Autonoma de Mexico.

1549. Oberholser, H. C. 1912. A revision of the subspecies of the Green Heron (*Butorides virescens* Linnaeus). Proc. U. S. Natl. Mus. 42: 529-577.

Florida caerulea

1550. Dickerman, R. W. & K. C. Parkes. 1968. Notes on the plumages and generic status of the Little Blue Heron. Auk 85: 437-440.

1551. Drouilly, P. 1971. [New record of the Little Blue Heron in Chile]. Bol. Ornitol. 3: 6.

1552. Dusi, J. L. 1958. Dispersion of Little Blue Heron from a pond in Macon Co., Alabama. Alabama Birdlife 6: 9-11.

1553. ___________. 1963. Mortality of the Little Blue Heron. Alabama Birdlife 11: 39-42.

1554. ___________. 1967. Migration in the Little Blue Heron. Wilson Bull. 79: 223-235.
-------: -------: -------: B-R: *Flordia caerulea*: "Migration in the Little Blue Heron is composed of a dispersal from the nestling colony areas in the spring."; "The southward migration of young and adults followed two major pathways. Those from the Mississippi River area and most of its drainage, migrated westward and south along the Gulf of Mexico to Mexico, Central and South America. Those from Central Alabama and to the east, migrated to the east and south through Florida and to the island chains, Trinidad and South America.": -------: 7.

1555. ffrench, R. P. 1965. Some unusual habits of Little Blue Herons. Carib. J. Sci. 5: 89.

1556. Recher, H. F. & J. T. Recher. 1969. Comparative foraging efficiency of adult and immature Little Blue Herons (*Florida caerulea*). Anim. Behav. 17: 320-322.

Bulbulcus ibis

1557. Belton, W. 1974. Cattle Egrets in Rio Grande do Sul, Brazil. Bird-Banding 45: 59.

1558. de Visscher, M. N. 1978. [Aspects of behavior of the Cattle Egret, *Bubulcus ibis*, a roost in a mangrove region of Venezuela]. Gerfaut 68: 177-193.

1559. Frazier, F. P., Jr. 1964. New records of Cattle Egrets in Peru. Auk 81: 553-554.

1560. Lancaster, D. A. 1970. Breeding behavior of the Cattle Egret in Colombia. Living Bird 9: 167-194.

1561. Loew-McConnell, R. H. 1967. Biology of the immigrant Cattle Egret *Ardeola ibis* in Guyana, South America. Ibis 109: 168-179.

1562. Mata, J. R. 1973. [Presence of *Bubulcus ibis* in Argentina]. Neotropica 19: 58.

1563. Narosky, S. 1973. [First nests of the Cattle Egret (*Bubulcus ibis*) in Argentina]. Hornero 11: 225-226.

1564. Parfitt, B. D. 1976. Cattle Egrets in central Coahuila, Mexico. Condor 78: 273.

1565. Sick, H. 1965. [*Bubulcus ibis* (L.) on Marajo Island, Para: a heron still not recorded in Brazil]. An. Ac. Brazil Cienc. 37 (3-4): 568-570.

1566. Slud, P. 1957. Cattle Egret in Costa Rica. Condor 59: 400.

Dichromanassa rufescens

1567. Kiff, L. F. & J. L. Kiff. 1974. First specimen of Reddish Egret from Honduras. Auk 91: 170-171.

1568. van Rossem, A. J. 1926. The Lower California Reddish Egret. Condor 28: 246.

Egretta thula

1569. Loftin, H. 1967. Florida-banded Snowy Egret recovered in Panama. Florida Nat. 40: 30.

1570. Thayer, J. E. & O. Bangs. 1909. Description of a new subspecies of the snowy heron. Proc. New England Zool. Club 4: 39-41.

Ixobrychus exilis

1571. Dickerman, R. W. 1973. The Least Bittern in Mexico and Central America. Auk 90: 689-691.
-------: 1959-1971: -------: Spec.: -------: *Ixobrychus exilis hesperus* should be considered as part of *I. e. exilis*: 4.

1572. Dickey, D. R. & A. J. van Rossem. 1924. A new race of the Least Bittern from the Pacific coast. Bull. S. California Acad. Sci. 23: 11-12.

1573. van Rossem, A. J. 1930. A new Least Bittern from Sonora. Trans. San Diego Soc. Nat. Hist. 6: 227-228.

Botaurus lentiginosus

1574. Barnes, V., Jr. 1948. The American Bittern in Puerto Rico. Auk 65: 115.

CICONIIDAE

Mycteria americana

1575. Spaans, A. L. 1975. The status of the Woodstork, Jabiru, and Maguari Stork along the Surinam coast, South America. Ardea 63: 116-130.

THRESKIORNITHIDAE

Plegadis chihi

1576. Danforth, S. T. 1936. Invasion of Glossy Ibises in Puerto Rico. Auk 53: 323.

Ajaia ajaja

1577. Haverschmidt, F. 1969. The Roseate Spoonbill breeding in Surinam. Auk 86: 131.

ANSERIFORMES

ANATIDAE

1578. Aldrich, J. W., et al. 1949. Migration of some North American waterfowl. U.S.D.I., Fish & Wildlife Service, Spec. Sci. Rep. (Wildl.) No. 1.

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1581. Cooke, W. W. 1906. Distribution and migration of North American ducks, geese, and swans. U. S. Dept. Agr., Biol. Surv., Bull. 26.

1582. Delacour, J. & E. Mayr. 1945. The family Anatidae. Wilson Bull. 57: 3-55.

1583. García Montaña, F. & O. H. Garrido. 1967. Ducks which nest in Cuba. Acad. Ceinc. Cuba Mus. Filipe Poey Trab Divulg 60: 1-8.
-------: -------: -------: Spec.; obs.; lit.: *Aix sponsa*, *Oxyura jamaicensis*: Natural history; breeding behavior and ecology in Cuba; distribution: 8.

1584. Hochbaum, H. A. 1955. Travels and traditions of waterfowl. Minneapolis, Univ. of Minnesota Press.

1585. Lincoln, F. C. 1933. State distribution of returns from banded ducks. Second paper - British Columbia, California, Connecticut, Georgia, Illinois, Iowa, and Kansas. Bird-Banding 4: 19-32.

1586. Olrog, C. C. 1974. Recoveries of banded Argentine waterfowl. Bird-Banding 45: 170-177.
-------: 1963-1973: -------: B-R: *Dendrocygna bicolor*, *Anas cyanoptera*; both banded and recovered in northern Argentina: Distribution; movement: 0.

1587. Ortiz de la Puente, J. 1952. [The ducks of Peru]. Serie Divulg. Cient. No. 4, Pp. 3-20; Dir. Pesqueria y Caza del Min Agricultura, Lima, (de "Pesca y Caza" No. 4).

1588. Phillips, J. C. 1922-1925. A natural history of the ducks, 3 vols. Boston and New York, Houghton-Mifflin Co.

1589. Rand, A. L. 1968. Geographical differentiation of arctic Anatidae as a result of isolation during the last glacial advance. Ardea 56: 1-159.

1590. Roux, F., R. Maheo & A. Tamiser. 1976. The role of environmental factors on three species of resident and migratory ducks wintering in a tropical zone. C. R. Hebd. Seances Acad. Sci. D. Sci. Nat. 283: 975-978.

1591. Saunders, G. B. 1953. The tule goose (*Anser albifrons gambelli*), blue goose (*Chen caerulescens*) and mottled duck (*Anas fulvigula maculosa*) added to the list of the birds of Mexico. Auk 70: 84-85.

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1593. Spaans, A. L., A. M. A. Holthuijzen & B. H. J. De Jong. 1978. Spatial distribution and food of ducks in the coastal area of Surinam. Ardea 66: 24-31.
40 km ENE Paramiribo, Surinam: Feb-May 1976: Mangrove; lagoon: Spec.; obs.; stomach contents; FA: Dendrocygna autumnalis, D. bicolor, Anas discors: Ecology: 10.

Dendrocygna autumnalis

1594. Bolen, E. G. & R. E. McCamant. 1977. Mortality rates for Black-bellied Whistling Ducks. Bird-Banding 48: 350-353.
-------: 1962-1975: -------: Spec., B-R: -------: 52% annual mortality rate, no significant difference between male and female rates: 4.

1595. Bourne, G. R. & D. R. Osborne. 1978. Black-bellied Whistling Duck utilization of a rice culture habitat. Interciencia, 3: 152-159.
Seafield and Burma, Guyana: Jan-Aug 1974: Rice fields at various stages of cultivation: HA, Obs.; Spec., Exp.: -------: Depredations on rice crop caused by resident whistling ducks were slight (0.2%-2.0%): 40.

1596. Haverschmidt, F. 1947. Field notes on the Black-bellied Tree Duck in Dutch Guyana. Wilson Bull. 59: 209.

D. bicolor

1597. Flickinger, E. L., D. S. Lobpries & H. A. Bateman. 1977. Fulvous Whistling Duck populations in Texas and Louisiana. Wilson Bull. 89: 329-331.

1598. Watson, G. E. 1967. Fulvous Tree Duck observed in the southern Sargasso Sea. Auk 84: 424.
23° o3' N, 60° 00' W: 25 Oct 1964: Open ocean: Obs.: Dendrocygna bicolor: Three birds observed dabbling: 4.

Anas platyrhynchos (includes diazi, fulvigula, maculosa)

1599. Hubbard, J. P. 1977. The biological and taxonomic status of the Mexican Duck. New Mexico Game & Fish Bull. 16.

1600. Johnsgard, P. A. 1961. Evolutionary relationships among the North American mallards. Auk 78: 3-43.
-------: -------: -------: Spec.; exp.; obs.; lit.: Anas platyrhynchos, A. diazi, A. fulvigula, A. maculosa, A. rubripes: Author recommends that A, diazi, A. fulvigula, and A. maculosa be considered subspecies of A. platyrhynchos; A. rubripes is doubtfully distinct at the species level: Systematics; ecology; distribution: 66.

A. crecca

1601. Mosan, G. R., R. I. Smith & R. K. Martinson. 1967. The Green-winged Teal: its distribution, migration, and population dynamics. Spec. Sci. Rep. Wild. 100. U. S. Fish and Wildl. Serv., Washington, D.C.

A. discors

1602. Briggs, R. L. 1977. Blue-winged Teal banding project Panama Canal Zone. N. Amer. Bird Bander 2: 104-105.
Canal Zone, Panama: Oct-Apr, 1972-1975: Lake: BR: -------: Philopatry; trapping methods: 0.

1603. Escalante, R. 1963. Notes on three species of waterfowl in Uruguay. Condor 65: 533.

1604. ___________ & E. Gomez-Haedo. 1957. Southernmost records of the Blue-winged Teal. Condor 59: 398-399.

1605. Haverschmidt, F. 1970. The Blue-winged Teal Anas discors in northern South America along with results of banding in Surinam. Vogelwarte 25: 229-233.
-------: -------: BR; lit.: -------: Distribution; data on 40 recaptures of birds banded in North America; one bird banded as an imm. on 6 Sept 1954 in Ontario recaptured on 10 Oct 1954 in Coronie, Surinam; the longest period between banding and recapture for an individual was for a bird banded as an imm.at Delta, Manitoba on 29 Aug 1953 recaptured Sept 1955 in Nickerie, Surinam: 12.

1606. Navas, J. R. 1961. [The Blue-winged Teal, Anas discors, captured in Argentina]. Neotropica 7: 231-276.

1607. Ramsden, C. T. 1910. The Blue-winged Teal in Cuba in summer. Auk 27: 452.

Aix sponsa

1608. Stewart, P. A. 1977. Radial dispersal and southward migration of Wood Ducks banded in Vermont. Bird-Banding 48: 333-336.

1609. ___________. 1978. Association of individual Wood Ducks in movements away from their nesting grounds. IBB News 50: 132-133.

1610. ___________. 1979. Radial dispersal of Wood Ducks after the nesting season and before fall migration. North Amer. Bird Bander 4: 1-3.

Aythya americana

1611. Williams, S. O., III. 1975. Redhead breeding in the State of Jalisco, Mexico. Auk 92: 152-153.
Laguna de Zapotlan, 100 miles S Guadalajara, Jalisco, Mexico: Apr-Aug 1973: Lake and lakeshore (Typha, Scirpus, Najas): Obs.: Aythya americana, Oxyura jamaicensis, Gallinula chloropus, Fulica americana: Breeding: 3.

Lophodytes cucullatus

1612. Beatty, H. A. 1945. Hooded Merganser in St. Croix, Virgin Islands, U. S. A. Auk 62: 461.

FALCONIFORMES

1613. Baughman, J. L. 1974. A very early notice of hawk migrations. Auk 64: 304.

1614. Brown, L. & D. Amadon. 1968. Eagles, hawks and falcons of the world. New York, McGraw-Hill Book Co. (2 vols.)

1615. Haverschmidt, F. 1962. Notes on the feeding habits and food of some hawks of Surinam. Condor 64: 154-158.

1616. Heintzelman, D. 1975. Autumn Hawk Flights. New Brunswick, Rutgers Univ. Press.

1617. Hundley, M. H. 1967. Migration of Swainson's Hawk and Turkey Vultures in Guatemala. Gla. Nat. 40: 29.

Panajachel, Guatemala (elev. 5,000'): 23 Mar 1966: -------: Obs.: *Cathartes aura*, *Buteo swainsoni*: Migration: 1.

1618. Purdue, J. R., C. C. Carpenter, D. L. Marcellini & R. F. Clarke. 1972. Spring migration of Swainson's Hawk and Turkey Vulture through Veracruz, Mexico. Wilson Bull. 84: 92-93.

1619. Smith, N. G. 1980. Hawk and vulture migrations in the Neotropics. Pp. 51-65 *in* Migrant birds in the Neotropics: ecology, behavior, distribution and conservation. (A. Keast & E. S. Morton, Eds.) Washington, D. C., Smithsonian Inst. Press.

Panamá: -------: -------: Obs.: *Cathartes aura*, *Buteo swainsoni*, *B. playpterus*: Members of those species pass over Panama City in large numbers (100,000 +) in both spring & fall; *B. platypterus* solitary and territorial in Panama; argues that migrants constitute an integral part of the tropical community: 25.

1620. Thiollay, J. M. 1978. [Comparisons between the Falconiform populations of the coastal plains of Mexico and the Ivory Coast]. Gerfaut 58: 139-162.

CATHARTIDAE

1621. Brown, W. H. 1976. Winter population trends in the Black and Turkey vultures. Amer. Birds 30: 909-912.

1622. Cracraft, J. & P. V. Rich. 1972. The systematics and evolution of the Cathartidae in the Old World Tertiary. Condor 74: 272-283.

-------: -------: -------: Spec.: -------: Authors propose that the existence of four fossil genera of Cathartidae in the tertiary of Europe raise the possibility of an old world origin for this group - perhaps in the tropical-subtropical environments of Europe during the late Cretaceous or early Tertiary: 21.

1623. Ligon, J. D. 1967. Relationships of the cathartid vultures. Occas. Papers Mus. Zool., Univ. Michigan No. 651: 1-26.

1624. McHargue, L. A. 1977. Nesting of Turkey Vulture and Black Vulture in Panama. Wilson Bull. 89: 328-329.

1625. Miller, L. M. 1960. On the history of the Cathartidae in North America. Nov. Colombianas 1: 232-235.

1626. Wetmore, A. 1964. A revision of the American vultures of the genus Cathartes. Smithsonian Misc. Coll. 146: 1-18.

Cathartes aura

1627. Bussjaeger, L. J., C. C. Carpenter, H. L. Cleveland & D. L. Marcellini. 1967. Turkey Vulture migration in Veracruz, Mexico. Condor 69: 425-426.

1628. Stewart, P. A. 1977. Migratory movements and mortality rate of Turkey Vultures. Bird-Banding 48: 122-124.

North America: -------: -------: B-R: 131 recoveries show a general N-S movement during migration; northern populations appear to migrate longer distances than southern populations; longest recovery was a bird-banded in Wisconsin and recovered in Honduras: Migration: 0.

Coragyps atratus

1629. Brodkorb, P. 1944. Geographical variation in the Black Vulture. Pap. Michigan Acad. Sci., Arts & Letters (1943) 29: 115-121.

1630. Eisenmann, E. 1963. Is the Black Vulture migratory? Wilson Bull. 75: 244-249.

Panama City, Panama: 3 Nov-20 Dec 1962: Urban area: Obs.: Coragyps atratus: Possible migration: 15.

1631. Skutch, A. F. 1969. Notes on the possible migration and the nesting of the Black Vulture in Central America. Auk 86: 726-731.

Escazu, SW San Jose, Costa Rica: 3 Aug-9 Dec 1944: Mountain ridge: Obs.: Coragyps atratus: -------: 1.

ACCIPITRIDAE

1632. Skutch, A. F. 1945. The migration of Swainson's and Broad-winged Hawks through Costa Rica. Northwest Sci. 19: 80-89.

1633. Smith, N. G. 1973. Spectacular Buteo migration over Panama Canal Zone, October, 1972. Amer. Birds 27: 3-5.

Elanoides forficatus

1634. Buskirk, W. H. & M. Lechner. 1978. Frugivory by Swallow-tailed Kites in Costa Rica. Auk 95: 767-768.

Monteverde, Puntarenas Province, Costa Rica (elev. 1,300 m): 4 Jul 1977: "forest" - coffee finca edge: Obs.: -------: Several individuals from a flock of 18 Kites feeding on fruits of Matayba oppositifolia, a common tree in the area: 4.

1635. Haverschmidt, F. 1977. Roosting habits of the Swallow-tailed Kite. Auk 94: 392.

Surinam: -------: -------: Obs.: Elanoides forficatus: Most individuals observed appeared to be members of the permanent resident population: Behavior: 2.

1636. Lemke, T. O. 1979. Fruit-eating behavior of Swallow-tailed Kites (Elanoides forficatus) in Colombia. Condor 81: 207-208.

1637. Skutch, A. F. 1965. Life history notes on two tropical American Kites. Condor 67: 235-246.

Costa Rica: 1938-1964: Montane forest (2000'-5000' elev.): Obs.: Elanoides forficatus: Life history: 11.

Ictinia mississippiensis (includes plumbea)

1638. Eisenmann, E. 1963. Mississippi Kite in Argentina; with comments on migration and plumages in the genus Ictinia. Auk 80: 74-77.

1639. Parker, J. W. 1977. Second record of the Mississippi Kite in Guatemala. Auk 94: 168-169.

-------: -------: -------: B-R: Ictinia mississippiensis: Nestling banded 3 Aug 1971 NW of Knowles, Beaver Co., Oklahoma, USA was shot near Escuintla, Dept. Escuintla, Guatemala 29 Oct 1971: Migratory movement: 6.

Accipiter striatus (includes erythrocnemius)

1640. Storer, R. W. 1952. Variation in the resident Sharp-shinned Hawks of Mexico. Condor 54: 283-289.

1641. van Rossem, A. J. 1939. A new race of Sharp-shinned Hawk from Mexico. Auk 56: 127-128.

Buteo jamaicensis

1642. Oberholser, H. C. 1959. A new Red-tailed Hawk from Honduras. Proc. Biol. Soc. Washington 72: 159.

1643. Storer, R. W. 1962. Variation in the Red-tailed Hawks of southern Mexico and Central America. Condor 64: 77-78.

B. platypterus

1644. Danforth, S. T. & J. A. Smyth. The Puerto Rican form of the Broad-winged Hawk. J. Agric., Univ. Puerto Rico 19: 485-486.

1645. Loftin, H. 1967. Hawks delayed by weather on spring migration through Panama. Florida Nat. 40: 29.

Chiriquicita, Bocas del Toro Prov., Panama: 18-20 Apr 1963: Rain forest: Obs.: Buteo platypterus: Migration: 0.

1646. Tabb, E. C. 1973. A study of wintering Broad-winged Hawks in Southeastern Florida 1968-1973. EBBA News, Suppl. 1973, Vol. 36.

1647. __________. 1979. Winter recoveries in Guatemala and southern Mexico of Broad-winged Hawks banded in south Florida. Amer. Bird Bander 4: 60.
-------: -------: -------: B-R: *Buteo platypterus*: Many *B. platypterus* winter in south Florida but 88% of those captured were immatures. To date none has been recovered in subsequent years wintering in Florida, but 3 have been recovered from elsewhere in the tropics (Mexico, Guatemala): Migration; distribution: 2.

B. swainsoni

1648. Browning, M. R. 1974. Comments on the winter distribution of the Swainson's Hawk (*Buteo swainsoni*) in North America. Amer. Birds 28: 865-867.

1649. Voss, W. A. 1978. [Hawk Ambassador]. Article in local newspaper, "Suplemento Rural" for 16 Aug 1978.
Rio Grande do Sul, Brasil: 28 Dec 1977: -------: Spec.: Injured *Buteo swainsoni* banded in Alberta, Canada in summer 1977: Migratory movement: 0.

Buteogallus anthracinus

1650. Abramson, I. J. 1976. The Black Hawk (*Buteogallus anthracinus*) in South Florida. Amer. Birds 30: 661-662.

1651. Twomey, A. C. 1956. A new race of Black Hawk of the species *Buteogallus anthracinus* from the Republic of Honduras. Ann. Carnegie Mus., 33: 387-389.

Circus cyaneus (includes *cinereus*)

1652. Amadon, D. 1961. Relationships of the Cinerous Harrier. Auk 78: 256-257.

PANDIONIDAE

1653. Escalante, R. 1960. Occurrence of the Osprey in Uruguay. Condor 62: 138.

1654. __________. 1965. [Notes on the Osprey and *Phaetusa simplex* in Uruguay]. Hornero 10: 277-278.
Rio San Jose, Dept. de Cane lones, Uruguay: 8, 15 Jan; 7 Feb 1963; 25 Feb 1965: Estuary: Obs.: *Pandion haliaetus*: Distribution: 1.

1655. Gaylord, H. A. 1897. The American Osprey in Lower California. Osprey 1: 131.

1656. Haverschmidt, F. 1954. The occurrence of *Pandion haliaetus* in Surinam. Auk 71: 326.

1657. Henny, C. J. & D. W. Anderson. 1979. Osprey *Pandion haliaetus* distribution, abundance and status in western North America 3. The Baja Calif. and Gulf of California Mexico Population. Bull. S. California Acad. Sci. 78: 89-106.

1658. ___________ & W. T. Van Velzen. 1977. Migration patterns and wintering localities of American Ospreys. Trans. N. Amer. Osprey Research Conf.: 21-33.

FALCONIDAE

Falco peregrinus

1659. Albuquerque, J. L. B. 1978. Contribution to the knowledge of Falco-peregrinus in South America. Rev. Bras. Bio. 38: 727-737.
Porto Alegre, Rio Grande do Sul and Cruz Alta, Rio Grande do Sul, Brasil; other South American localities: 1975-1977: -------: Anas discors, Elanoides forficatus, Ictinea plumbea, Buteo swainsoni, Falco peregrinus, Tringa flavipes, Himantopus mexicanus: Peregrine localities, migration routes, winter range and feeding habits; some notes on the probability of contamination from organochlorine insecticides used on Brazilian crops.

1660. Banks, R. C. 1969. General discussion on the Peregrine Falcon in western North America and Mexico. Pp. 93-99 in Peregrine Falcon populations, their biology and decline. (J. J. Hickey, Ed.) Madison, Wisconsin, University of Wisconsin Press.
-------: -------: -------: Lit.: Two further records for breeding F. peregrinus in Mexico are mentioned, one from Southeastern Coahuila and one from near Ciudad Victoria, Tamualipas.

1661. ___________. 1969. The Peregrine Falcon in Baja-California, Mexico and the Gulf of California. Pp. 81-91 in Peregrine populations, their biology and decline. (J. J. Hickey, Ed.) Madison, Wisconsin, Univ. of Wisconsin Press.
-------: -------: -------: Lit.: -------: Information on Mexican breeding range, egg dates, clutch size, food habits, and population trends; total Mexican breeding population estimated at 60 pairs, all in Baja California, coastal Sonora or neighboring islands: 24.

1662. Enderson, A. 1965. A breeding and migration survey of the Peregrine Falcon. Wilson Bull. 77: 327-339.

1663. Escalante, R. 1961. Occurrence of the Cassin race of the Peregrine Falcon in Uruguay. Condor 63: 180.
Coronilla, Dept. de Rocha, Uruguay: 31 Mar 1957; 18 May 1957: Marshes and lagoons: Spec.: Distribution: 2.

1664. Fyfe, R. W., S. A. Temple & T. J. Cade. 1976. The 1975 North American Peregrine Falcon survey. Canadian Field Nat. 90: 228-273.
-------: -------: -------: Obs.: -------: Distribution map showing historical range into Mexico: 85.

1665. Gochfeld, M. 1977. Peregrine Falcon sightings in eastern Peru. Condor 79: 391-392.
Chanchomayo Valley, Junin, Peru: 5, 6 Aug. 11, 13 Sept, 1972: Obs.: -------: Distribution: 8.

1666. Hunt, W. G., R. R. Rogers & D. J. Slowe. 1975. Migratory and foraging behavior of Peregrine Falcons on the Texas coast. Canadian Field Nat. 89: 111-123.

1667. Kuyt, W. G. 1967. Two banding returns for Golden Eagle and Peregrine Falcon. Bird-Banding 38: 78-79.
Inda Muerta, Chaca Prov., Argentina: Jan 1966: Farmyard: Spec.; B-R: Falco peregrinus: A bird banded as a nestling along the Thelon River, N.W.T., Canada was shot chasing chickens by a farmer in Argentina: 2.

1668. McGregor, R. C. 1899. The Duck Hawk in Lower California. Oologist 16: 181-182.

1669. Penard, T. E. 1927. The Duck Hawk in Surinam. Auk 44: 420-421.

1670. Sharpe, R. B. 1873. On the Peregrine Falcon of the Magellan Straits. Ann. Mag. Nat. Hist. 11(4): 220-224.

1671. Sick, H. 1960. [Notes on Falco peregrinus Bonaparte in Brazil (Falconidae, Aves)]. Mus. Nac., Univ. Brasil, Publ. Avulsas 34.

F. columbarius

1672. Peters, J. L. 1927. The North American races of Falco columbarius. Bull. Exxes Co. Ornithol. Club for 1926 (issued May 9, 1927).

1673. Temple, S. A. 1972. Systematics and evolution of the North American Merlins. Auk 89: 325-338.

F. sparverius

1674. Bolen, E. G. & D. S. Derden. 1980. Winter returns of American Kestrels. J. Field Ornith. 51: 174-175.

1675. Cruz, A. 1976. Food and foraging ecology of the American Kestrel in Jamaica. Condor 78: 409-412.
Lluidas Vale. St. Catherine's Parrish, Jamaica (elev. 400 m): summer and winter, 1969; spring and summer, 1970; summers, 1971, 1972: Wooded pasture: Obs.: -------: Diet of this permanent resident population was 8% Orthoptera, 48% Anolis, 19% Sturnus vulgaris, 25% miscellaneous; feeding territories .66 km in dia.: 25.

1676. Dathe, H. 1971. Sparrow Hawk Falco sparverius as bat hunter in Cuba. Milu 3: 195-197.

1677.

1678. Gessamen, J. A. 1979. Premigratory fat in the American Kestrel. Wilson Bull. 91: 625-626.
Cache Co., Utah, USA: Apr, Jul, Ser 1973 and 1974: -------: Spec.; LA: Falco sparverius seems to show physiological changes associated with preparation for long distance migration: 3.

1679. Jenkins, R. E. 1970. Food habits of wintering Sparrow Hawks in Costa Rica. Wilson Bull. 82: 97-98.

Turrialba, Costa Rica: Oct 1967-Mar 1968: Pasture, savannah: Obs.: *Falco sparverius*: Birds arrived in Sep, departed in Apr; during their stay they were solitary, territorial and sedentary; foods used consisted mostly of Orthoptera and lizards: Behavior; foods: 0.

1680. Mearns, E. A. 1892. A study of the sparrow hawks (subgenus Tinnunculus) of America, with especial reference to the continental species (*Falco sparverius* Linn.). Auk 9: 252-270.

GRUIFORMES

RALLIDAE

1681. Dickerman, R. W. 1971. Notes on various rails in Mexico. Wilson Bull. 83: 49-56.

-------: 1956-1958; 1961-1966: Inland and coastal marshes: Spec.; obs.: *Rallus elegans*, *R. longirostris*, *R. limicola*, *Porzana carolina*, *Laterallus jamaicensis*, *Coturnicops noveboracnesis*, *Porphyrula martinica*: Lumping of *Rallus elegans* and *R. longirostris* is proposed; comments on subspecies ranges in Mexico: 19.

1682. Gill, F. B. 1964. The shield color and relationships of certain Andean coots. Condor 66: 209-211.

1683. Ripley, S. D. 1977. Rails of the world. Boston, Godine.

Rallus limicola

1684. Dickerman, R. W. 1966. A new Virginia Rail from Mexico. Condor 68: 215-216.

-------: -------: -------: Spec.; obs.: -------: Distribution: 5.

1685. Goldman, E. A. 1908. The Virginia Rail (*Rallus virginianus*) breeding in Mexico. Condor 10: 181.

Lerma; Toluca; Mexico, Mexico (8,600'): 8-10 Jul 1904: *Scirpus* marshes: breeding distribution: 0.

Porzana carolina

1686. Gochfeld, M. 1972. Observations on the status, ecology, and behavior of Soras wintering in Trinidad,West Indies. Wilson Bull. 84: 200-201.

Caroni River, N. W. St. George Co., Trinidad: Feb-May 1965: Marsh: Obs.: -------: Individual *Porzana carolina* used call notes: Ecology; behavior: 7.

Laterallus jamaicensis

1687. Coale, H. K. 1923. Subdivisions of the Little Black Rail (*Creciscus jamaicensis*). Auk 88-90.

1688. Harty, S. T. 1965. The discovery of the Black Rail (*Laterallus jamaicensis*) in Panama and the first breeding record. Cassinia 48: 19-20.

Pan American Highway between Panama City and Chiapo, Panama: 6, 7, 26 Jul 1963: Grasslands: Spec.; obs.: -------: Distribution: 0.

1689. Moreno, A. 1953. Considerations about the systematic value of *Laterallus jamaicensis jamaicensis* (Gmelin) and *Laterallus jamaicensis pygamaeus* (Blackwell). Torreia (Publ. Mus. Felipe Poey, Cuba) 20: 1-8.

-------: -------: -------: Spec.: -------: Breeding populations of this species from Cuba, Jamaica and the United States are not appreciably different: Systematics: 11.

Porphyrula martinica

1690. Castro, M. & T. de Vries. 1970. Purple Gallinule (*Porphyrula martinica*) in eastern Pacific Ocean. Ardea 58: 262-263.

1691. Gross, A. O. & J. Van Tyne. 1929. The purple gallinule (*Ionornis martinicus*) of Barro Colorado Island, Canal Zone. Auk 46: 431-446.

1692. Nisbet, I. C. T. 1960. Notes on the American Purple Gallinule. British Birds 53: 146-149.

Gallinula chloropus

1693. Bangs, O. 1915. The American forms of *Gallinula chloropus* (Linn.) Proc. New England Zool. Club 5: 93-99.

1694. Dickey, D. R. & van Rossem, A. J. 1924. The status of the Florida gallinule of western North America. Condor 26: 93.

Fulica americana

1695. Danforth, S. T. 1938. American Coot in Puerto Rico. Auk 55: 528.

CHARADRIIFORMES

1696. Brooks, W. S. 1967. Food and feeding habits of autumn migrant shorebirds at a small midwestern pond. Wilson Bull. 79: 307-315.

1697. Burger, J. M., D. C. Hahn & J. Chase. 1979. Aggressive interactions in mixed-species flocks of migrating shorebirds. Anim. Behav. 27: 459-469.

1698. ___________, M. A. Howe, D. C. Hahn & J. Chase. 1977. Effects of tide cycles on habitat selection and habitat partitioning by migrating shorebirds. Auk 94: 743-758.

Little Beach Island, New Jersey, U.S.A.: 15 Jul-10 Sep 1974: Beach; mud flat: Obs.; FA: *Haematopus palliatus*, *Pluvialis squatarola*, *Charadrius semipalmatus*, *Arenaria interpres*, *Tringa melanoleuca*, *T. flavipes*, *Calidris canutus*, *C. pusilla*, *C. mauri*, *C. alba*, *C. melodus*, *Limnodromus griseus*, *Catoptrophorus semipalmatus*: Habitat use; intra- and interspecific interaction: 19.

1699. Burton, J. & R. McNeil. 1975. [Autumnal migration routes for thirteen species of North American shorebirds]. Rev. Geogr. Montr. 29: 305-334.

1700. Cooke, W. W. 1912. Distribution and migration of North American shorebirds. U. S. Dept. Agric., Biol. Survey Bull. No. 35: 1-100.
Western Hemisphere: -------: -------: Lit.: 76 Charadriiforms are considered, 50 of which are nearctic migrants: Distribution; abundance; conservation; migration: 0.

1701. Danforth, S. T. 1934. Some West Indian records of Charadriiformes. Auk 51: 103.
St. Kitts; Nevis; Montserrat; Barbados; Guiana: Summer, 1931: -------: Spec.; obs.: *Arenaria interpres*, *Actitis macularia*, *Tringa flavipes*, *Calidris pusilla*, *C. minutilla*, *Limnodromus griseus*, *Sterna dougallii*: Distribution: 0.

1702. Devillers, P. & J. A. Terschuren. 1976. Some distributional records of migrant North American Charadriiformes in coastal South America. Gerfaut 67: 107-125.
-------: 3 Nov 1975-27 Feb 1976: -------: Obs.: *Pluvialis dominica*, *Aphriza virgata*, *Arenaria interpres*, *Numenius phaeopus*, *Actitis macularia*, *Catoptrophorus semipalmatus*, *Tringa melanolecua*, *T. flavipes*, *Calidris canutus*, *C. fuscicollis*, *C. alba*, *Steganopus tricolor*, *Larus pipixcan*, *Chlidonias niger*, *Sterna elegans*: Distribution.

1703. Evans, P. R. 1976. Energy balance and optimal foraging strategies in shorebirds: Some implications for their distributions and movements in the non-breeding season. Ardea 64: 117-139.

1704. Gerstenberg, R. H. 1979. Habitat utilization by wintering and migrating shorebirds on Humboldt Bay, California. Stud. Avian Biol. 2: 33-40.

1705. Goss-Custard, J. D. 1970. Feeding dispersion in some over-wintering wading birds. Pp. 3-35. *in* Social behavior in birds and mammals. (J. H. Crook, Ed.). London, Academic Press.

1706. ___________. 1977. The ecology of the Wash. 3. Density-related behavior and the possible effects of a loss of feeding grounds on wading birds (Charadrii). J. Appl. Ecol. 14: 721-739.

1707. ___________. 1977. Role of winter food supplies in the population ecology of common British wading birds. Bull. Int. Waterfowl Res. Bur. 43/44: 67. (Abstract)

1708. ___________. 1979. Effect of habitat loss on the numbers of overwintering shorebirds. Stud. Avian Biol. 2: 167-178.

1709. ___________. 1979. Predicting the effect of loss of feeding grounds on wading birds. Pp. 195-205. *in* Estuarine and coastal land reclamation and water storage. (B. Knights & A. J. Phillips, Eds.). Farnborough, Saxon House.

1710. ___________, R. A. Jenyon, R. E. Jones, P. E. Newberry & R. L. Williams. 1977. The ecology of the Wash. 2. Seasonal variation in the feeding conditions of wading birds (Charadrii). J. Appl. Ecol. 14: 701-719.

1711. Harrington, B. A. 1975. Season progress report - Massachusetts shorebird studies. Unpubl. report to the U. S. Fish & Wildlife Service.

1712. ___________ & P. K. Donahue. 1972. Season progress report- Massachusetts shorebird studies. Unpubl. report to the U. S. Fish & Wildlife Service.

1713. ___________, S. K. Groves & N. T. Houghton. 1974. Season Progress Report for 1973 to U. S. Fish & Wildlife Service (unpublished).

1714. ___________ & D. C. Schneider. 1978. Studies of shorebirds at an autumn migration stopover area - final report to the U. S. Fish and Wildlife Service (unpublished).

1715. ___________, ___________, N. T. Houghton & N. O. Atkins. 1976. Season Progress Report for 1975 to the U. S. Fish & Wildlife Service (unpublished).

1716. Howe, M. A. 1979. Final Report Work Unit 904.12. (Shorebirds and colonial nesting waterbirds). Report to the U. S. Fish and Wildlife Service (unpublished).
-------: -------: -------: Lit.: Haematopus palliatus, Charadrius semipalmatus, C. wilsonia, C. melodus, C. alexandrinus, Pluvialis squatarola, Numenius phaeopus, Tringa melanoleuca, T. flavipes, Catoptrophorus semipalmatus, Arenaria interpes, Limnodromus griseus, L. scolopaceus, Calidris canutus, C. alba, C. pusilla, C. mauri, C. minutilla, C. fuscicollis, C. maritima, C. alpina, Micropalama himantopus: Distribution; migration route; habitat use; feeding; status; conservation; studies in progress; knowledgeable researchers: 233.

1717. Hughes, R. A. 1979. Notes on Charadriiformes of the south coast of Peru. Stud. Avian Biol. 2: 49-53.

1718. Lack, D. & L. S. V. Venables. 1940. Migratory limicoline birds in the Galapagos. Ibis 82: 730-731.

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1720. McNeil, R. 1968. [Wintering and summering of North American waterbirds in northeastern Venezuela, correspondence with molt and accumulation of fat]. Ph.D. Thesis, Montreal, Canada, Univ. Montreal.

1721. ___________. 1970. [Wintering and summering North American waterbirds in northeastern Venezuela. Oiseau R.F.O. 40: 185-302.
Cumana; Chiguana, Sucre, Venezuela: May 1965-May 1967: Lagoon: Obs.; spec.; LA: Pandion haliaetus, Charadrius semipalmatus, C. wilsonia, Pluvialis squatorola, Arenaria interpres, Actitis macularia, Tringa solitaria, Catoptrophorus semipalmatus, Tringa melanoleuca, T. flavipes, Calidris melanotos, C. fuscicollis, C. pusilla, C. mauri, C. minutilla, Limnodromus griseus, Micropalama himantopus: Migrant physiology; migration routes; causes of boreal summering by waterbirds in South America: 163.

1722. ___________. 1971. [The causes of summering in avian migrants]. Tchebec 1: 3-11:

Cumnana; Chiguana, Sucre, Venezuela: May 1965-May1967: Lagoon: Obs.; spec.; LA: -------: Causes for shorebirds remaining in South America during b[illegible] summer include - physiological imbalance or sexual immaturity: 16.

1723. ___________ & J. Burton. 1973. Dispersal of some southbound migrating North American shorebirds away from the Magdalen Islands, Gulf of St. Lawrence and Sable Island, Nova-Scotia, Canada -- preliminary report for 1969, 1970, and 1970. Carib. J. Sci. 13: 257-278.

1724. ___________ & F. Cadieux. 1972. Fat content and flight-range capabilities of some adult spring and fall migrating North American shorebirds in relation to migration routes on the Atlantic coast. Nat. Canadiene 99: 589-605.

1725. Morrison, R. I. G. 1978. Canadian Wildlife Service, Shorebird Colour-Marking Program, James Bay 1977. Contributors' Progress Report. Ottawa. Canadian Wild. Serv.

1726. ___________ & B. A. Harrington. 1979. Critical shorebird resources in James Bay and Eastern North America. Trans. Amer. Wild. Nat. Resources Conf. 44: 498-507.

1727. ___________ & A. L. Spaans. 1979. National Geographic mini-expeditin to Surinam, 1978. Wader Study Group Bull. 26: 37-41.

1728. Myers, J. P. 1980. The pampas shorebird community: Interactions between breeding and nonbreeding members. Pp. 37-49. in Migrant birds in the Neotropics: ecology, behavior, distribution, and conservation. (A. Keast & E. S. Morton, Eds.). Washington, D. C., Smithsonian Inst. Press.

Coastal Buenos Aires Prov., Argentina: Jul 1973 - Dec 1974: Beach, intertidal zone, tidal slough, freshwater wetlands, grasslands: Obs.: 19 nearctic migrant shorebirds discussed: Migrant-resident interaction; non-breeding ecology & habitat use: 30.

1729. ___________, P. G. Conners & F. A. Pitelka. 1979. Terrioriality in non-breeding shorebirds. Shorebirds in marine environments. Stud. Avian Biol. 2: 231-246.

1730. Page, G. & D. F. Whitacre. 1975. Raptor predation on wintering shorebirds. Condor 77: 73-83.

Bolinas Lagoon, California, U.S.A.: "Winters" 1971-1972; 1972-1973: Sand and mud flats: Spec.; obs.: Shorebirds of 13 species were important prey for Falco columbarius, F. sparverius, Circus cyaneus, Asio flammeus, A. otus, Bubo virginianus: Predator-prey: 32.

1731. Palmer, R. S. 1967. Species Accounts. Pp. 143-267. in The shorebirds of North America (G. D. Stout, Ed.). New York, Viking Press.

1732. Post, W. & M. M. Browne. 1976. Length of stay and weights of inland migrating shorebirds. Bird-Banding 47: 333-339.

1733. Recher, H. F. 1964. Some aspects of the population biology of migrant shorebirds. Ph.D. Thesis. Stanford, Calif., Stanford Univ.

1734. ___________. 1966. Some aspects of the ecology of migrant shorebirds. Ecology 47: 393-407.
Central coast California; New Jersey, U.S.A.: Aug 1961-Sept 1963: Marine in littoral zone: Obs.; FA; Foraging of 26 transient Charadriiforms is analyzed: Transient ecology: 28.

1735. ___________ & J. T. Recher. 1969. Some aspects of the ecology of migrant shorebirds. II. Agression. Wilson Bull. 81: 140-154.

1736. Schneider, D. C. 1978. Equalization of prey numbers by migratory shorebirds. Nature 271: 353-354.

1737. Small, J. 1970. Estuaries and the ecology of shorebirds. Trans. N. Amer. Wild. Nat. Resources Conf. 35: 258-265.

1738. Smith, S. M. & F. G. Stiles. 1979. Banding studies of migrant shorebirds in northwestern Costa Rica. Stud. Avian Biol. 2: 41-47.

1739. Spaans, A. L. 1978. Status and numerical fluctuations of some North American waders along the Surinam coast. Wilson Bull. 90: 60-83.
-------: Apr 1970-May 1973: Beach; inland canal borders; lagoons; mangrove: Obs.: 24 species recorded of which 20 are regular: Abundance; distribution; timing of migration; migration routes: 15.

1740. ___________. 1979. Wader Studies in Surinam, South America. Wader Study Group Bull. 25: 32-37.
Caribbean Coast of Surinam: Apr 1970-May 1973; Jun 1975-May 1977: Tidal flats; lagoons; mangrove: Spec.; obs.; B-R: 24 species of nearctic shorebird migrants are treated, 20 of which occur regularly in migration on Surinam coasts: Molt and recapture data indicate that waders in Surinam originate from northeastern North America and fly to Surinam in fall via a trans-Atlantic route: Surinam appears to be an important staging area for transients: 6.

1741. Stinson, C. H. 1980. Flocking and predator avoidance: Models of flocking and observations on the spatial dispersion of foraging winter shorebirds (Charadrii). Oikos 34: 35-43.

1742. Voous, K. H. 1963. Summering arctic and subarctic waders in the Caribbean Islands of Curacao and Bonaire. Condor 65: 244.

1743. Wetmore, A. 1927. Our migrant shorebirds in southern South America. U. S. Dept. of Agriculture, Tech. Bull. No. 26: 1-24
Argentina; Uruguay; Paraguay; Chile: 29 May 1920-19 May 1921: Marsh; savannah; grassland: Obs.; spec.: *Charadrius alexandrinus*, *C. hiaticula*, *Pluvialis dominica*, *Arenaria interpres*, *Aphriza virgata*, *Numenius phaeopus*, *N. borealis*, *Bartramia longicauda*, *Actitis macularia*, *Tringa solitaria*, *T. melanoleuca*, *T. flavipes*, *Calidris canutus*, *C. melanotos*, *C. fuscicollis*, *C. bairdii*, *C. pusilla*, *C. alba*, *Micropalama himantopus*, *Tryngites subruficollis*, *Limosa haemastica*, *Phalaropus fulicarius*, *Steganopus tricolor*, *Lobipes lobatus*: Distribution; timing of migration; habitats used; population changes: 0.

2158. Wolfson, A. & T. R. Westeroff. 1960. Photoperiodic regulation of the preparatory phase of the annual gonadal cycle in a trans-equatorial migrant, *Dolichonyx oryzivorus*. Anot. Rec. 137: 402.

Sturnella magna

2159. Dickerman, R. W. & A. R. Phillips. 1970. Taxonomy of the Common Meadowlark (*Sturnella magna*) in Central and Southern Mexico and Caribbean Central America. Condor 72: 305-309.
-------: -------: -------: Spec.; lit.: -------: Distribution of Mexico's breeding populations: 17.

Xanthocephalus xanthocephalus

2160. Royall, W. C., Jr., J. L. Guarina, J. W. De Grazio & A. Gammell. 1971. Migration of banded Yellow-headed Blackbirds. Condor 73: 100-106.
-------: 1961-1968: -------: B-R: *Xanthocephalus xanthocephalus*: Wintering area for North and South Dakota birds centered in the Mexican states of Jalisco, Michoacan and Guanajuato: Migration; distribution: 10.

2161. Strauch, J. G., Jr. 1975. A specimen of the Yellow-headed blackbird from the Panama Canal Zone. Condor 77: 355.

Agelaius phoeniceus

2162. Dickerman, R. W. 1965. The nomenclature of the Red-winged Blackbird (*Agelaius phoeniceus*) of south-central Mexico. Occas. Papers, Louisiana St. Univ. Mus. Zool. 31: 1-6.

2163. ____________. 1974. Review of Red-winged Blackbirds (*Agelaius phoeniceus*) of Eastern, West Central, and Southern Mexico and Central America. Amer. Mus. Novit. 2538: 1-18.
Gulf of Mexico-Caribbean-Pacific (from Nayarit southward) Coastal lowlands; interior Trans-Mexican Volcanic Belt: -------: Marshes: Spec.: -------: Map of *Agelaius phoeniceus* Mexican and Central American populations are shown and ranges are discussed: 23.

2164. Dickey, D. R. & A. J. van Rossem. 1925. A new Red-winged Blackbird from western Mexico. Proc. Biol. Soc. Washington 38: 131-132.

2165. Dolbeer, R. A. 1978. Movement and migration patterns of Red-winged Blackbirds a continental overview. Bird-Banding 49: 17-34.
-------: -------: -------: Lit.: Distribution; crop depredation: 18.

2166. Hardy, J. W. & R. W. Dickerman. 1965. Relationships between two forms of the Red-winged Blackbird in Mexico. Living Bird 4: 107-129.

2167. Howell, A. B. 1917. A new subspecies of Red-winged Blackbird from western Central America. Auk 34: 196-197.
San Sebastian, El Salvador: 1912: Mangrove Swamp: *Agelaius phoeniceus*: Taxonomy: distribution; 0.

2168. Oberholser, H. 1919. Description of a new Red-winged Blackbird from Texas. Wilson Bull. 31: 20-23.

2169. Orians, G. H. 1973. The Red-winged Blackbird in tropical marshes. Condor 75: 28-42.
11 km SW Canas, Costa Rica: 1966-1967: Marsh: Obs.: Food availability analysis: *Agelaius phoeniceus*: Costa Rican populations of *A. phoeniceus* showed mean clutch size and lower fledging success rates than temporate populations: Breeding ecology: 17.

2170. van Rossem, A. J. 1926. The California forms of *Agelaius phoeniceus* (Linnaeus). Condor 28: 72-76.

2171. __________. 1930. A new race of Red-winged Blackbirds from Costa Rica. Condor 32: 162.

Icterus spurius (includes *I. fuertesi*)

2172. Dickerman, R. W. & D. W. Warner. 1962. A new Orchard Oriole from Mexico. Condor 64: 311-314.

2173. Morton, E. S. 1979. Effective pollination of *Erythrina fusca* by the Orchard Oriole (*Icterus spurius*): Coevolved behavioral manipulation? Ann. Missouri Bot. Garden 66: 482-489.
Pedro Miguel Locks, Panama Canal, Panama: Jan, Mar 1974; Mar 1975: Flowering *Erythrina fusca* trees: Obs.: 13 species fed on nectar at the tree including *Vermivora peregrina*, *Icterus spurius*, *I. galbula*; *I. spurius* used the flowers more than other species; the flowers appear to be adapted to pollination by this common, wintering species: Food use; co-evolution: 10.

I. galbula (includes *I. bullockii*, *I. abeillei*)

2174. Rising, J. D. 1973. Morphological variations and status of the orioles, *Icterus galbula*, *I. bullockii* and *I. abeillei* in the northern Great Plains and in Durango, Mexico. Canadian J. Zool. 51: 1267-1273.

2175. Schemske, D. W. 1975. Territoriality in a nectar feeding Northern Oriole in Costa Rica. Auk 92: 594-595.
Guanacaste Natl. Park, Santa Rosa, Costa Rica: 16-23 Feb 1973: Flowers of a liana, *Combretum farinosum*: Obs.: *Vermivora peregrina*, *Dendroica petechia*, *Icterus galbula*, *Piranga ludoviciana* and 5 resident species: Food use; interspecific competition: 3.

2176. Selnes, E. R. 1958. Minnesota Baltimore Oriole recovered in Honduras. Bird-Banding 30: 14.

2177. Timken, R. L. 1970. Food habits and feeding behavior of the Baltimore Oriole in Costa Rica. Wilson Bull. 82: 184-188.
-------: Feb-Mar 1968: Forest "borders and boundaries": Obs.; spec.: *Icterus galbula*: Stomach contents-Lepidoptera larvae = 68%; other Arthropods = 12%; plant material = 7%; unident. = 13%: Food habits: 3.

Euphagus cyanocephalus

2178. Stepney, P. H. R. 1975. Wintering distribution of Brewer's Blackbird: historical aspect; recent changes and fluctuations. Bird-Banding 46: 106-125.

Molothrus aeneus

2179. Stein, R. 1977. The Bronzed Cowbird in Louisiana. Louisiana Ornith. Soc. News 78: 5.

THRAUPIDAE

2180. Nørguard-Olesen, E. 1973. Tanagers. Skibby-Bøgerne v/Aage, Skibby, Denmark. 2 vols.

2181. Sclater, P. L. 1856. Synopsis avium tanagrinarum. A descriptive catalogue of the known species of Tanagers. Part 2. Proc. Zool. Soc. London 1856: 108-132.

Piranga olivacea

2182. Danforth, S. T. 1936. Scarlet Tanager in St. Lucia. Auk 53: 90.

P. rubra

2183. Parkes, K. C. 1967. Prealternate molt in the Summer Tanager. Wilson Bull. 70: 456-458.

P. flava

2184. Oberholser, H. C. 1919. Description of a new subspecies of *Piranga hepatica* Swainson. Auk 36: 74-78.

2185. Parkes, K. C. 1969. An undescribed subspecies of Hepatic Tanager *Piranga flava* from Colombia. Bull. British Ornith. Club 89: 81-83.

2186. Sutton, G. M. & A. R. Phillips. 1942. The northern races of *Piranga flava*. Condor 44: 277-279.

2187. Zimmer, J. T. 1929. A study of the tooth-billed red tanager *Piranga flava*. Field Mus. Nat. Hist., Zool. Ser. 17: 169-219.

FRINGILLIDAE

2188. Cox, G. W. 1961. The relation of energy requirements of tropical finches to distribution and migration. Ecology 42: 253-266.
Barro Colorado Island, Canal Zone, Panama: 8 Feb-15 Sep 1959: -------: Exp., LA: Energy measurements of some members of the genera *Sporophila* and *Arremonops* indicate that "advantages that would be gained by migration to the latitude of central Illinois for a summer breeding season are small, since the slight increase in productive energy would be available for only part of the summer and at a cost of a considerable increase in energy required for existence.": 12.

2189. Todd, W. E. C. 1926. A study of the neotropical finches of the Genus *Spinus*. Ann. Carnegie Mus. 17(1): 11-82.

Pheucticus ludovicianus

2190. Voelker, T. 1973. Recovery of a banded Rose-breasted Grosbeak. Loon 45: 24-25.
Winona, Minnesota, U.S.A.; Choatalum, Guatemala: 16 Jun 1971: 20 Mar 1972: -------: B-R: *Pheucticus ludovicianus*: Migration: 0.

Guiraca caerulea

2191. Dwight, J. & L. Griscom. 1927. A revision of the geographical races of the Blue Grosbeak (*Guiraca caerulea*). Amer. Mus. Novit. 257.

2192. Gochfeld, M., R. Gochfeld, M. Kleinbaum & G. Tudor. 1974. Sight record of a Blue Grosbeak (*Guiraca caerulea*) in Colombia. Amer. Birds 28: 958.

2193. Storer, R. W. & D. A. Zimmerman. 1959. Variation in the Blue Grosbeak (*Guiraca caerulea*) with special reference to the Mexican populations. Occas. Papers Mus. Zool., Univ. Michigan 609: 1-13.

Passerina cyanea

2194. Carey, M. & V. Nolan, Jr. 1979. Population dynamics of Indigo Buntings and the evolution of avian polygyny. Evolution 33: 1180-1192.

2195. Downer, A. C. 1963. Indigo Buntings in Montego Bay. Broadsheet No. 1 (Gosse Bird Club, Jamaica): 3-4.

2196. ___________. 1965. Indigo Buntings at Montego Bay. Broadsheet No. 5 (Goose Bird Club, Jamaica): 9-10.

2197. Johnston, D. W. 1970. Age and sex distribution in Indigo Buntings. Bird-Banding 41: 113-118.

2198. ___________ & A. C. Downer. 1968. Migratory features of the Indigo Bunting in Jamaica and Florida. Bird-Banding 34: 277-293.

P. ciris

2199. Fisk, E. J. 1974. Wintering populations of Painted Buntings in southern Florida. Bird-Banding 45: 353-359.

2200. Storer, R. W. 1951. Variation in the Painted Bunting (*Passerina ciris*), with special reference to wintering populations. Occas. Papers Mus. Zool., Univ. Michigan 532: 1-12.

Spiza americana

2201. ffrench, R. P. 1967. The Dickcissel on its wintering grounds in Trinidad. Living Bird 6: 123-140.
-------: Jan 1959-Apr 1966: Rice fields: *Spiza americana*: Wintering biology: 14.

2202. Fretwell, S. D. 1977. Is the Dickcissel a threatened species? Amer. Birds 31: 923-932.

Pipilo erythrophthalmus

2203. Sibley, C. G. 1950. Species information in the Red-eyed Towhee of Mexico. Univ. California Pub. Zool. 50: 109-194.

Passerculus sandwichensis

2204. Hatler, D. F. & R. W. Campbell. 1975. Notes on spring migration, including sex segregation, of some western Savannah Sparrows. Syesis 8: 401-402.

2205. Hubbard, J. P. 1974. Geographic variation in the Savannah Sparrows of the inland Southwest, Mexico, and Guatemala. Nemouria 12.

2206. Peters, J. L. & L. Griscom. 1938. Geographical variation in the Savannah Sparrow. Bull. Mus. Comp. Zool. 80: 443-478.

Ammodramus savannarum

2207. Hartert, E. 1907. Description of a new subspecies of *Ammodramus* from Santo Domingo. Bull. British Ornith. Club 19(133): 73-74.

Chondestes grammacus

2208. Ramsden, C. T. 1912. Lark Sparrow (*Chondestes grammacus grammacus*) in Cuba. Auk 29: 395.

2209. Tashian, R. E. 1956. Lark Sparrow (*Chondestes grammacus*) on Bimini, Bahamas, B.W.I. Auk 73: 558.

Aimophila botterii (includes *A. petencia*)

2210. Webster, J. D. 1959. A revision of the Botteri Sparrow. Condor 61: 136-146.

Spizella passerina

2211. Dickey, D. R. & A. J. van Rossem. 1928. A new Chipping Sparrow from Central America. Condor 30: 359.

Melospiza lincolnii

2212. Gochfeld, M. 1969. Status of the Lincoln's Sparrow in Jamaica, West Indies. Wilson Bull. 81: 219-220.
-------: -------: -------: Obs.; spec.: -------: Distribution: 3.

2213. Miller, A. H. & T. T. McCabe. 1935. Racial differentiation in *Passerella* (*Melospiza*) *lincolnii*. Condor 37: 144-162.

2214. Tramer, E. J. 1979. First sight records of Lincoln's Sparrow for Costa Rica. Wilson Bull. 91: 469-470.

Melospiza melodia

2215. Dickerman, R. W. 1963. The Song Sparrows of the Mexican Plateau. Occ. Papers Minnesota Mus. Nat. Hist. 9: 1-79.
-------: Jun 1956-Dec 1958: Marsh; riparian vegetation; parkland: Obs.; spec.: *Thryomanes bewickii*, *Telmatodytes palustris*, *Cistothorus platensis*, *Geothlypis trichas*, *Sturnella magna*, *Agelaius phoeniceus*, *Molothrus ater*, *Passerculus sandwichensis*, *Pooecetes gramineus*, *Chondestes grammacus*, *Melospoza lincolnii*, *M. georgiana*, *M. melodia*: Southernmost populations of *Melospiza melodia* are examined; these populations show a high degree of endemism (8 subspecies); this high degree of endemism is due to the island-like nature of aquatic and subaquatic habitats on the Mexican plateau; races of the plateau appear to be most closely related to subspecies groups from western North America: 82.

2216. Phillips, A. R. & R. W. Dickerman. 1957. Notes on the Song Sparrows of the Mexican Plateau. Auk 74: 376-382.

ECOLOGY

Topics directly or indirectly related to transient or wintering nearctic migrants. Includes studies on diversity, co-evolution, behavior, natural history, resource use, flocking, migrant - resident interactions and territoriality. A few key studies on palaearctic migrants are included as well.

2217. Allee, W. C. 1926. Distribution of animals in a tropical rainforest with relation to environmental factors. Ecology 7: 445-468.

2218. Amadon, D. 1973. Birds of the Congo and Amazon forests: a comparison. Pp. 267-278 in Tropical forest ecosystems in Africa and South America: a comparative review (B. J. Meggers, E. S. Ayensu & W. D. Duckworth, eds.) Washington, D.C., Smithsonian Inst. Press.
-------: -------: Lowland tropical rain forest: Lit.: 250 species of old and 550 species of new world tropical birds: Species richness; migrants considered "not a very important segment of the Amazonian fauna." (p. 271); some opinions on origin and history of tropical faunas: Ecology; zoogeography: 20.

2219. Bailey, S. F. 1978. Latitudinal gradients in colors and patterns of passerine birds. Condor 80: 372-381.
North and Central America: -------: -------: Lit.: 784 species of 34 families are considered of which roughly 500 are migrants; Nearctic migrants are considered to be members of Nearctic rather than Neotropical avifauna; several hypotheses are suggested to explain gradients in color pattern, mostly related to camouflage; no significant latitudinal trend in "colorfulness" per se was found but nearctic migrants appeared to be more strongly dichromatic: 17.

2220. Beehler, B. 1980. A comparison of avian foraging at flowering trees in Panama and New Guinea. Wilson Bull. 92: 513-519.

2221. Blondel, J. 1969. [Synecology of Passerine migrants and residents in the south French Mediterranean]. Marseille, Centre Reg. Doc. Pedag.

2222. Bond, J. 1941. Nidification of the birds of Dominica. B.W.I.. Auk 58: 364-375.

2223. Bourlière, F. 1973. The comparative ecology of rain forest mammals in Africa and tropical America: some introductory remarks. Pp. 279-292 in Tropical forest ecosystems in Africa and South America: A comparative review (B. J. Meggers, E. S. Ayensu & W. D. Duckworth, eds.) Washington, D.C., Smithsonian Inst. Press.

2224. Bowdish, B. S. 1903. Food habits of some West Indian birds. Auk 20: 193-195.

2225. Bradford, D. F. 1971. Interspecific patterns of visitation at fruit trees by birds. Pp. 450-461 in Organization for tropical studies. Habitat exploitation and diversity: An ecological approach with vertebrates. San Jose, Costa Rica.

HAEMATOPODIDAE

1744. Escalante, R. 1958. The subspecific identity of the Oystercatcher in Uruguay. Condor 60: 191-192.

CHARADRIIDAE

1745. Strauch, J. G., Jr. & L. G. Abele. 1979. Feeding ecology of three species of plovers wintering on the Bay of Panama, Central America. Stud. Avian Biol. 2: 217-230.

Charadrius alexandrinus

1746. Bullock, D. S. 1936. The snowy plover (Charadrius alexandrinus occidentalis) nesting in Chile. Auk 53: 170-172.

Mocha Island, Chile: Nov-Dec 1932: Beach: Obs.: Charadrius alexandrinus, C. vociferus, Pluvialis squatarola, Numenius phaeopus, Tringa melanoleuca, Calidris bairdii, C. alba, Limnodromus sp.: Data and speculation on South American breeding by "Nearctic" shorebirds: 3.

1747. Warriner, J. & R. Warriner. 1977. Shorebird research - the Snowy Plover project. Pt. Reyes Bird Obs. 42: 1-2.

C. wilsonia

1748. Naranjo Heano, L. G. 1979. Charadrius wilsonia wilsonia: new record for Colombia. Lozania 30: 6-7.

C. vociferus

1749. Chapman, F. M. 1920. Proposed new race of the killdeer. Auk 37: 105-108.

Coastal Peru and southern Ecuador: -------: -------: Spec.; obs.: Resident Peruvian form of Charadrius vociferus is formally recognized; anomalies in breeding dates (Jun and Dec) are noted: Taxonomy; distribution: 5.

Pluvialis dominica

1750. Hatch, J. J. & J. P. Hailman. 1967. Golden Plovers in Galapagos. Condor 69: 320.

1751. Haverschmidt, F. 1969. The migration of the American Golden Plover through Surinam. Wilson Bull. 81: 210-211.

-------: -------: -------: Obs.; spec.: -------: Haverschmidt presents some evidence that the fall flight of Pluvialis dominica involves stops in the Caribbean and some prolonged stopovers in Surinam; gives a few Surinam records for spring: 4.

1752. Johnston, D. W. & R. W. McFarlane. 1967. Migration and bioenergetics of flight in the Pacific Golden Plover. Condor 69: 156-168.

1753. Preston, F. W. 1949. The Pacific flyway of the Golden Plover. Auk 66: 87-88.

1754. Sauer, E. G. F. 1963. Migration habits of Golden Plovers. Proc. Int. Ornith. Cong. 13: 454-467.

1755. Wetmore, A. 1945. The golden plover in Nicaragua. Auk 62: 313-314.

P. squatarola

1756. Baker, M. C. 1974. Foraging behavior of Black-bellied Plovers (Pluvialis squatarola). Ecology 55: 162-267.

1757. Haber, C. 1978. Comparative foraging behavior of juvenile and older Black-bellied Plovers (Pluvialis squatarola) at a migratory stopover. Manomet, MA, Rept. Manomet Bird Observatory (unpublished).

1758. Michael, C. W. 1935. Feeding habits of the Black-bellied Plover in winter. Condor 37: 169.

1759. Stinson, C. H. 1977. The spatial distribution of wintering Black-bellied Plovers. Wilson Bull. 89: 470-472.

SCOLOPACIDAE

1760. Ashmole, M. J. 1970. Feeding of Western and Semipalmated Sandpipers in Peruvian winter quarters. Auk 87: 131-135.

Bay of Paracas, 150 miles S of Lima, Peru: Oct-Nov 1965: Shoreline: Obs.; FA: Calidris pusilla, C. mauri: -------: 0.

1761. Baker, M. C. 1971. A comparative study of the foraging ecology of six species of shorebirds. (Charadriiformes, Charadrii) on their breeding and wintering ranges. Ph.D. Thesis. New Haven, Conn. Yale Univ.

1762. ____________. 1973. Stochastic properties of the foraging behavior of six species of migratory shorebirds. Behaviour 45: 242-270.

1763. ____________ & A. E. M. Baker. 1973. Niche relationships among six species of shorebirds on their wintering and breeding ranges. Ecol. Mongr. 43: 193-212.

Fort Churchill, Manitoba, Canada; St. Petersburg, Pinnellas Col. and Famingo, Monroe Co., Florida, USA: 25 May-8 Aug 1968; 2 Jun-15 Aug 1969; 5 Dec 1968-2 May 1969: HA, FA, Spec.: Calidris minutilla, C. pusilla, C. alpina, Limnodromus griseus, Tringa flavipes, C. semipalmatus: Data indicate broader overlap in niche between members of these coexisting species in summer than in winter correlated with greater food availability on the breeding ground: 99.

1764. Burton, P. J. K. 1972. The feeding techniques of Stilt Sandpipers and Dowitchers. Trans. San Diego Soc. Nat. Hist. 17: 63-68.

1765. Harrington, B. A. & R. I. G. Morrison. 1980. An investigation of wintering areas of Red Knots (Calidris canutus) and Hudsonian Godwits (Limosa haemastica) in Argentina. Report to the World Wildlife Fund (unpublished).
-------: 22 Nov-19 Dec 1979: -------: Obs.: 162 species are recorded including 44 nearctic migrants: The coasts of Argentina are important areas for Calidris canutus and Limosa haemastica: Distribution; molt; habitat: 31.

1766. Jehl, J. R., Jr. 1963. An investigation of fall migrating dowitchers in New Jersey. Wilson Bull. 75: 250-261.

1767. Kelly, P. R. & H. L. Cogswell. 1979. Movements and habitat use by wintering populations of Willets and Marbled Godwits. Stud. Avian Biol. 2: 69-82.

Arenaria interpres

1768. Groves, S. K. 1978. Age-related differences in Ruddy Turnstone foraging and aggressive behavior. Auk 95: 95-103.
Plymouth Co., Massachusetts, U.S.A.: 5 Aug-25 Sep 1973; 1974: "Sand and weed-littered flats;" "Barnacle-covered rocks": Obs.; B-R: Arenaria interpres: Foraging behavior; intraspecific interaction: 13.

1769. Thomson, M. C. 1973. Migratory patterns of Ruddy Turnstones in the central Pacific Region. Living Bird 12: 5-23.
St. George Island, Pribilof Islands, Pacific Ocean: 1964-1968: Grassland: B-R; obs.: Arenaria interpres: Migration route; ortstreue; food use; behavior: 13.

Capella gallinago (includes paraguaiae)

1770. Barlow, J. C. 1967. Autumnal breeding of the Paraguay Snipe in Uruguay. Auk 84: 421-422.

1771. Haverschmidt, F. 1976. The Common Snipe in Surinam. Auk 93: 379-381.
-------: -------: -------: Spec.: Capella gallinago: Of 48 specimens of C. gallinago collected in Surinam, 47 were of the resident race C. g. paraguaiae, one was the N. American race C. g. delicata: Comments on actual winter range of C. g. delicata in S. America: 9.

1772. Naney, R. H. 1975. Snipe breeding displays performed on wintering grounds. Auk 92: 169.

1773. Tuck, L. M. 1972. The snipes: a study of the genus Capella. Canadian Wild. Serv. Monogr. Serv. No. 5.

Numenius americanus

1774. Loftin, H., S. G. Martin & G. V. N. Powell. 1968. An addition to the avifauna of Panama: Long-billed Curlew (Numenius americanus). Condor 70: 91.

1775. Oberholser, H. C. 1918. Notes on the subspecies of Numenius americanus Bechstein. Auk 35: 188-195.

N phaeopus

1776. Taverner, P. A. 1942. The distribution and migration of the Hudsonian Curlew. Wilson Bull. 54: 3-11.

N. borealis

1777. Banks, R. C. 1977. The decline and fall of the Eskimo Curlew, or why did the curlew go extaille? Amer. Birds 31: 127-134.

Bartramia longicauda

1778. Haverschmidt, F. 1966. The migration and wintering of the Upland Plover in Surinam. Wilson Bull. 78: 319-320.

Actitis macularia

1779. Gochfeld, M. 1971. Notes on nocturnal roost of Spotted Sandpipers in Trinidad West Indies. Auk 88: 167-168.

1780. Palerm, E. 1972. [Presence in Uruguay of the Spotted Sandpiper Actitis macularia (L.), (Charadriiformes-Scolopacidae)]. Bol. Soc. Zool. Uruguay 2: 7-8.

Tringa totanus

1781. Goss-Custard, J. D. 1969. The winter feeding ecology of the Redshank Tringa totanus. Ibis 111: 338-356.

1782. ____________. 1970. The responses of Redshank (Tringa totanus L.) to spatial variations in the density of their prey. J. Anim. Ecol. 39: 91-113.

Catoptrophorus semipalmatus

1783. Belton, W. 1973. Willets in southern Brazil. Auk 90: 680.
Torres, Rio Grande do Sul, Brazil: 16 Dec 1971: Beach: Spec., obs.: Pluvialis dominica, Catoptrophorus semipalmatus: Distribution: 1.

1784. Grinnell, G. B. 1916. Willets in migration. Auk 33: 198-199.

1785. Mendenhall, V. M. 1970. Studies on the feeding ecology and behavior of the Willet. M. A. Thesis, Berkeley, Univ. California.

1786. Phelps, W. H., Jr. 1975. Willet breeding in Los Roques archipelago, Venezuela. Auk 92: 164-165.

1787. Sutton, G. M. 1950. The southern limits of the Willet's continental breeding range. Condor 52: 135-136.

Calidris canutus

1788. Bailey, B. 1978. Feeding ecology of the North American Knot, *Calidris canutus rufus*. Rept., Manomet, MA. Manomet Bird Observatory. (unpublished).

1789. Harrington, B. A. & R. I. G. Morrison. 1980. Notes on the wintering areas of Red Knot *Calidris canutus rufa* in Argentina. Wader Study Group Bull. 28: 40-42.

1790. Lévêque, R. 1977. [First observation of the knot *Calidris canutus* in the Republic of Ecuador]. Alauda 45: 125-126.

1791. Morrison, R. I. G., B. A. Harrington & L. E. Leddy. 1980. Migration routes and stopover areas of North American Red Knot wintering in South America. Wader Study Group Bull. 28: 35-39.

C. melanotos

1792. Hamilton, W. J., III. 1959. Aggressive behavior in migrant Pectoral Sandpipers. Condor 61: 161-179.

Delta, Manitoba, Canada: "summer:, 1956; 1957: Marsh: Obs.: *Calidris melanotos*: Territoriality in transient *C. melanotos* is interpreted as "... an aftermath of breeding-ground behavior.": Intraspecific interaction: 28.

C. bairdii

1793. Jehl, J. R., Jr. 1979. The autumnal migration of Baird's Sandpiper. Stud. Avian Biol. 2: 55-68.

C. minutilla

1794. Spaans, A. L. 1976. Molt of flight and tail feathers of the Least Sandpiper in Surinam, South America. Bird Banding 47: 359-364.

C. pusilla

1795. Dowd, C. T. 1977. The foraging behavior and ecology of Semipalmated Sandpipers at a migration stopover in Plymouth, Mass. M. A. Thesis, Boston Univ.

1796. Harrington, B. A. 1978. Morphometric variation and habitat utilization of Semipalmated Sandpipers during a migratory stopover. Unpubl. rept., Manomet, MA. Manomet Bird Observatory.

1797. ____________ & S. K. Groves. 1977. Aggression in foraging migrant Semipalmated Sandpipers. Wilson Bull. 89: 336-338.

1798. ____________ & R. I. G. Morrison. 1979. Semipalmated Sandpiper migration in North America. Stud. Avian Biol. 2: 83-100.

1799. Narosky, S., D. Yzurieta & M. Nores. 1977. [Presence of the Semipalmated Sandpiper, *Calidris pusilla*, in Argentina]. Hornero 11: 433-434.

1800. Phillips, A. R. 1975. Semipalmated Sandpiper identification, migration, summer and winter ranges. Amer. Birds 29: 799-806.
-------: -------: -------: Spec.; lit.: *Calidris mauri*, *C. pusilla*: Comments on accepted and actual ranges of *C. pusilla*; map: 36.

C. alba

1801. Connors, P. G., J. P. Myers, C. S. W. Connors & F. A. Pitelka. Interhabitat movements by sanderlings (*Calidris alba* Pallas) in relation to foraging profitability and the tidal cycle. Auk (In Press).

1802. Myers, J. P, P. G. Connors & F. A. Pitelka. 1979. Territory size in wintering sanderlings: the effects of prey abundance and intruder pressure. Auk 96: 551-561.

1803. ____________, ____________ & ____________. 1980. Optimal territory size and the sanderling: compromises in a variable environment. Pp. 135-158. *in* Mechanisms of foraging behavior. (A. C. Kamil & T. D. Sargent, Eds.). New York, Garland Press.

1804. ____________, S. L. Williams & F. A. Pitelka. 1980. An experimental analysis of prey availability for sanderlings *Calidris alba* Pallas feeding on sandy beaches crustaceans. Canadian J. Zool. (In Press).

1805. Silliman, J., G. S. Mills & S. Alden. 1977. Effect of flock size on foraging activity in wintering sanderlings. Wilson Bull. 80: 434-438.
Punta Santa Rosa, Sonora, México: 26-28 Nov 1974: Beach: Obs.; FA: *Calidris alba*: Flocking may reduce time spent per individual searching for predators: 11.

1806. Spaans, A. L. 1980. Biometrics and moult of Sanderlings *Calidris alba* during the autumn in Surinam. Wader Study Group Bull. 28: 33-35.

Limnodromus griseus

1807. Mallory, E. P. & D. C. Schneider. 1979. Agonistic behavior in Short-billed Dowitchers feeding on a patchy resource. Wilson Bull. 91: 271-278.

Tryngites subruficollis

1808. Haverschmidt, F. 1972. The migration of the Buff-breasted Sandpiper through Surinam. Wilson Bull. 84: 341-342.
Marienburg, Commewijne District, Surinam: Fall and Spring 1967-1969: Spec.; obs.: *Tryngites subruficollis*, *Pluvialis dominica*, *Bartramia longicauda*: Some ecological notes; distribution: 2.

1809. Myers, J. P. 1980. Territoriality and flocking in Buff-breasted Sandpipers: variations in non-breeding disperson. Condor 82, in press.

Limosa haemastica

1810. Leopold, N. F., Jr. 1961. Hudsonian Godwit (*Limosa haemastica*) in Puerto Rico. Auk 78: 264.

RECURVIROSTRIDAE

1811. Hamilton, R. B. 1975. Comparative behavior of the American Avocet and the Black-necked stilt (Recurvirostridae). Ornith. Monogr. 17: 1-98.

1812. McNeil, R. 1971. Lean-season fat in a South American population of Black-necked stilts. Condor 73: 472-475.
Cumaná; Chiguana, Sucre, Venezuela: Jan 1966-Apr 1967: Mangrove lagoon: Spec.; obs.; LA: *Himantopus mexicanus*: Analysis of lipid reserves in a supposedly sedentary population: 16.

1813. Nicholson, D. J. 1929. The breeding range of the Black-necked stilt. Wilson Bull. 41: 248-249.

LARIDAE

1814. Burger, J. M., M. Fitch, G. Shugart & W. Werther. 1980. Piracy in *Larus* gulls at a dump in New Jersey. Proc. Colonial Waterbird Group 3: 87-98.

1815. Cooke, W. W. 1915. Distribution and migration of North American Gulls and their allies. U. S. Dept. Agric., Bull. 292: 1-70.
Western Hemisphere: -------: -------: Lit.: 22 species or subspecies are considered, two of which (*Larus pipixcan* and *Xema sabini*) are true nearctic migrants: 0.

1816. ffrench, R. P. & C. T. Collins. 1965. Royal and Cayenne terns breeding in Trinidad, West Indies. Auk 82: 277.

1817. Moynihan, M. 1962. Hostile and sexual behavior patterns of some South American and Pacific Laridae. Behaviour, Suppl. 8.

1818. Olrog, C. C. 1969. [*Chlidonias niger* and *Sterna albifrons*, two new Larids for Argentina]. Neotropica 15: 7-8.

1819. Spaans, A. L. 1978. Status of terns along the Surinam Coast. Bird Banding 49: 66-67.
-------: 1970-1977: Beach; lagoons: Obs.: Notes on 10 species of terns are given including - *Chlidonias niger*, *Gelochelidon nilotica*, *Sterna hirundo*, *S. albifrons*, *S. maxima*, *S. sandvicensis*: Habitat; ecology; migration: 22.

1820. Udvardy, M. D. F., C. S. de Beausett & M. Ruby. 1973. New Tern records from Caribbean Honduras. Auk 90: 440-442.
Sandy Cay, 34 km off the N coast of Honduras: Summer 1970; 1971: -------: Obs.; spec.: *Sterna albifrons*, *S. dougallii*, *S. maxima*: Distribution; breeding records for *S. albifrons* and *S. dougallii*: 3.

1821 Voous, K. H. 1963. Tern colonies in Aruba, Curaçao and Bonaire, South Caribbean Sea. Proc. Int. Ornith. Congr. 13: 1214-1216.

Larus argentatus

1822. Cooke, M. T. 1940. Winter range of the Herring Gull. Auk 57: 250-251.
-------: -------: -------: B-R: *Larus argentatus*: Based on band returns, the winter range of the Herring Gull should read, "south to the Bahamas, Cuba, Jamaica, and southern Mexico; occasionally south to Panama.": 2.

1823. Gross, A. O. 1940. The migration of Kent Island Herring Gulls. Bird Banding 11: 129-155.

Xema sabini

1824. Chapman, S. E. 1969. The Pacific winter quarters of Sabines Gull. Ibis 111: 615-617.
Offshore waters of the Pacific Coast from Panama to Chile: Nov 1963 - Jan 1969: Open ocean: Obs.: *Xema sabini*, *Larus pipixcan*, *Chlidonias nigra*: *Xema sabini* peak abundance Dec-Feb at upwellings near Lat. 6° S and 16° S just off the coast of Peru. The southern border of Peru (18°S) is near the southern limit of the species' range: [illegible].

1825. Lambert, K. 1973. The migration of Sabine's Gulls, *Xema sabini*, in the northwest Atlantic. Canadian Field Nat. 87: 57-60.

1826. Mayaud, N. 1961. [On the migrations of Sabine's Gull *Xema sabini* (Sabine) and the question of its wintering quarters]. Alauda 29: 165-174.

1827. Post, P. W. 1971. Additional observations of Sabine's Gull from coastal Peru and Chile. Ibis 113: 517.

Gelochelidon nilotica

1828. Donahue, P. K. 1974. Gull-billed Tern in Caribbean South America. Auk 91: 845.
Isla de Salamanca, Colombia: 24, 26 Dec 1972: Sandbar: Obs.: *Gelochelidon nilotica*, *Sterna albifrons*, *Sterna sandivicensis*: Distribution: 2.

Sterna hirundo

1829. Austin, O. L., Sr. 1953. The migration of the Common Tern (Sterna hirundo) in the Western Hemisphere. Bird Banding 24: 39-55.

1830. Di Costanzo, J. 1978. Occurances of the Common Tern in the interior of South America. Bird Banding 49: 248-251.
Brazil; Bolivia: -------: -------: Lit.: -------: Sterna hirundo may be more common in inland South America than has been reported, especially immatures: 10.

S. albifrons

1831. Burleigh, T. D. & G. H. Lowery, Jr. 1942. An inland race of Sterna albifrons. Occ. Papers Mus. Zool., Louisiana Univ. 10: 173-177.

1832. Massey, B. W. 1977. Occurence and nesting of the Least Tern and other endangered species in Baja California, Mexico. Western Birds 8: 67-70.

S. maxima

1833. Buckley, F. G. & P. A. Buckley. 1974. Comparative feeding ecology of wintering adult and juvenile Royal Terns (Aves: Laridae, Sterninae). Ecology 55: 1033-1063.

1834. Escalante, R. 1968. Notes on the Royal Tern in Uruguay. Condor 70: 243-247.
-------: -------: -------: Spec.; obs.; lit.: Sterna maxima: May have breeding populations in Uruguay: 24.

1835. ___________. 1971. [The Royal Tern in Argentina]. Neotropica 17: 102-104.
-------: -------: -------: Spec.: Sterna maxima: May breed in Argentina: 11.

1836. Vincente, V. P. 1979. The occurrence of a nesting colony of the Royal Tern, Sterna (Thalasseus) maxima, on the south coast of Puerto Rico. Amer. Birds 33: 147.

S. sandvicensis (includes eurygnatha)

1837. Ansingh, F. H., H. J. Koelers, P. A. van der Werf & K. H. Voous. 1960. The breeding of the Cayenne or Yellow-billed Sandwich Tern in Curaçao in 1958. Ardea 48: 51-65.

1838. Campbell, K. E., Jr. 1971. First report of Sandwich Terns in Peru. Auk 88: 676.
Sechura, Puira Dept., Peru: 7 Apr 1970: Estuary: Spec.; obs.: -------: Distribution: 1.

1839. Escalante, R. 1970. Notes on the Cayenne Tern in Uruguay. Condor 72: 89-94.
-------: -------: -------: Spec.; obs.; lit.: Sterna (sandvicensis) eurygnatha: Distribution: 15.

1840. Haverschmidt, F. 1972. Notes on the Yellow-billed Tern. Bull. British Ornith. Club 92: 93-95.

1841. Junge, G. C. A. & K. H. Voous. 1955. The distribution and relationship of *Sterna eurygnatha* Saunders. Ardea 43: 226-247.

1842. Sick, H. & A. P. A. Leao. 1965. Breeding sites of *Sterna eurygnatha* and other seabirds off the Brazilian coast. Auk 82: 507-508.

1843. Voous, K. H. 1968. Geographical variation in the Cayenne Tern. Ardea 56: 184-187.

1844. Zapata, A. R. P. 1965. [New breeding localities of *Leucophaeus scoresbii* and *Sterna sandvicensis eurygnatha*]. Physis 25: 383-385.

S. caspia

1845. Leck, C. F. 1969. Caspian Tern in the Canal Zone. Florida Nat. 42: 42.

1846. Lewis, C. B. 1961. Caspian Terns in Jamaica. Auk 78: 264-265.

Chlidonias niger

1847. Contreras, J. R. 1979. [A new record of the Black Tern *Chlidonias niger surinamensis* (Gmelin) (Aves, Laridae) for Argentina]. Hist. Nat. 1: 1-3.
Arroyo Leyes, Dept. Maipú, Prov. Mendoza, Argentina: 5 Dec 1976: Lake; marsh: Spec.: *Chlidonias niger*: Distribution: 11.

1848. Halewijn, R. van. 1973. Black Tern *Chlidonias niger* in the South Caribbean Sea. Ardea 61: 189-191.

1849. ____________. 1973. Notes on sea birds. Part 44: Black Tern *Chlidonias-niger* in the South Caribbean Sea. Ardea 61: 189-191.
Netherlands Leeward Islands: Feb, Mar, Sep, Oct 1971: -------: *Chlidonias niger*, *Sterna hirundo*, *S. albifrons*: Distribution: 8.

COLUMBIFORMES

COLUMBIDAE

1850. Skutch, A. F. 1964. Life histories of Central American pigeons. Wilson Bull. 76: 211-247.

Columba fasciata

1851. Duncan, L. R. 1979. A Band-tailed Pigeon recovery in Florida. Florida Field Nat. 7: 28-29.

Columba leucocephala

1852. Arendt, W. J. 1980. Status of the White-Crowned Pigeon: Rangewide and in the Dominican Republic. *in*: Proc. 33rd Conf. Southeastern Assoc. Fish & Wildlife Agencies.

Zenaida asiatica

1853. Blankinship, D. R. 1970. White-winged dove nesting colonies in northeastern Mexico. Trans. N. Amer. Wildl. Nat. Resources Conf. 35.

1854. ___________, J. G. Teer, W. H. Kiel, Jr. & J. B. Trefethen. 1972. Movements and mortality of White-winged Doves banded in Tamaulipas, Mexico. Trans. N. Amer. Wildl. Nat. Resources Conf. 37: 312-325.

Texas, Mexico, Central America: 1966-1970: -------: BR: -------: *Zenaida asiatica* that breed in Tamaulipas and south Texas winter mostly along the Pacific coasts of Guatemala, El Salvador, Honduras and Nicaragua, with a few in Oaxaca and Chiapas; birds showed high fidelity to breeding sites from one year to the next; 13 individuals were collected on wintering grounds in Central America during the breeding season where there are resident populations of the species: 11.

1855. Clark, T. L. 1964. Birds across the border. Texas Game and Fish 22: 4, 5, 24.

Texas, USA; Mexico: -------: -------: B-R: *Zenaida asiatica*: Distribution: 0.

1856. Cottam, C. & J. B. Trefethen (Eds). 1968. Whitewings. Princeton, N. J. Van Nostrand Co., Inc.

South central and southwestern U. S.; Central America; Peru; Ecuador; Chile: -------: -------: Obs.; spec.; lit.: -------: Distribution (maps); abundance; habitat; migratory movements; population characteristics; ecology; foods used (breeding and wintering): Management: 105.

1857. Dunks, J. 1977. Where do they come from and where do they go? Texas Parks Wildl. 35: 2-5.

1858. Saunders, G. B. 1951. A new White-winged Dove from Guatemala. Proc. Biol. Soc. Washington 64: 83-90.

1859. ___________. 1968. Seven new White-winged Doves from Mexico. Central America and Southwestern United States. N. Amer. Fauna 65. 33 pp.

Z. macroura

1860. Aldrich, J. W. & A. J. Duvall. 1958. Distribution and migration of races of the mourning dove. Condor 60: 108-128.

North and Central America; West Indies: -------: -------: Spec.; lit.: -------: Breeding populations are found from southern Canada to the West Indies and Panama; northern populations migrate south as far as Panama; considerable mixing of transients and resident populations occurs during the winter but adults show a high degree of fidelity to breeding sites: 41.

1861. Blankenship, L. H. & H. M. Reeves. 1970. Mourning dove recoveries from Mexico. U. S. Bureau of Sport Fisheries & Wild. Spec. Sci. Rept. Wildlife No. 135.

-------: 1920-1967: -------: BR: Band recoveries of wintering doves were from all Mexican states except Yucatan and Quintana Roo; main winter area was SW part of country (Jalisco, Guanajuato, Michoacan, Colima); main breeding area of these migrants was N. Dakota, S. Dakota, Nebraska, Colorado, Nevada and Idaho; No birds were recovered in Mexico that had been banded in the eastern USA; Distribution: 8.

1862. Davis, C. A. 1974. Mourning Dove foods in semi-desert, South Central New Mexico. J. Wildlife Management 38: 941-944.

1863. Hayne, D. W. & P. H. Geissler. 1977. Hunted segments of the Mourning Dove: population, movement and importance. Tech. Bull. No. 3 Southeastern Association of Game and Fish Agencies.

-------: -------: -------: Spec.; B-R: -------: Contains data on migration route and wintering areas for specific breeding populations of Zenaida macroura; also data on interpopulation movements: 11.

CUCULIFORMES

CUCULIDAE

1864. Sclater, P. L. 1870. Further notes on the cuckoos of the genus Coccyzus. Proc. Zool. Soc. London 1870: 163-169.

Coccyzus americanus

1865. Kepler, C. B. & A. K. Kepler. 1978. Status and nesting of the Yellow-billed Cuckoo in Puerto Rico. Auk 95: 417-419.

STRIGIFORMES

STRIGIDAE

1866. Clark, R. J., D. G. Smith & L. H. Kelso. 1978. Working bibliography of owls of the world. With summaries of current taxonomy and distributional status. Raptor Information Center, Natl. Wildlife Federation Sci/Tech Ser. No. 1.

Micrathene whitneyi

1867. Ely, C. A. & R. S. Crossin. 1972. A northerly wintering record of the Elf Owl (Micrathene whitneyi). Condor 74: 215.

Central Sinaloa, Mexico: 10-11 Jan 1971: Second growth thorn forest: Spec.: -------: Distribution: 1.

1868. Ligon, J. D. 1968. The biology of the Elf Owl, Micrathene whitneyi. Misc. Publ. Mus. Zool., Univ. Michigan No. 136.
Cave Creek Canyon, Chiracahua Mts., Arizona, USA; several localities in Mexico: -------: Pine-oak woodland: Spec.; obs.; exp.; LA: -------: Biology; migration; distribution; behavior; metabolism; molt: 75.

Athene cunicularia

1869. Pefaur, J. E., F. M. Jaksic & J. L. Yanez. 1977. [The food of Speotyto cunicularia (Aves: Strigiformes) in Coquimbo Province]. An. Mus. Hist. Nat. Valparaiso (Chile) 10: 178-183.

1870. Schlatter, R. P., J. L. Yanez, H. Nunez & F. M. Jaksic. 1980. The diet of the Burrowing Owl in central Chile and its relation to prey size. Auk 78: 616-619.

1871. Yanez, J. L. & F. M. Jaksic. 1979. [Opportunistic predation of Speotyo cunicularia in El Norte Chico]. Not. Mensual, Mus. Nac. Hist. Nat. (Chile) 272. (In Press).

Asio flammeus

1872. Laterra, P. 1977. [Nesting of Asio flammeus in the riparian zone of the federal capitol]. Hornero 11: 436.

1873. Wetmore, A. 1928. The Short-eared Owls of Porto Rico and Hispaniola. Proc. Biol. Soc. Washington 41: 165-166.

CAPRIMULGIFORMES

CAPRIMULGIDAE

1874. Eisenmann, E. 1962. Notes on nighthawks of the Genus Chordeiles in southern Middle America with a description of a new race of Chordeiles minor breeding in Panama. Amer. Mus. Novit. 2094: 1-21.
-------: -------: -------: Spec.; lit.; obs.: Chordeiles minor, C. acutipennis - various races: Breeding populations of C. minor are described for Central America; populations of C. acutipennis are found throughout much of South America, Middle America and southwestern North America; West Indian Chordeiles populations are considered a separate species: 25.

1875. Oberholser, H. C. 1914. A monograph of the genus Chordeiles Swainson, type of a new family of goatsuckers. U. S. Natl. Mus. Bull. 86: 123.

Caprimulgus carolinensis

1876. Paterson, A. 1972. Nesting of Chuck-will's-widow on Andros Island. Bahamas. Auk 89: 676-677.

C. vociferus (includes *noctitherus*)

1877. Kepler, C. B. & A. K. Kepler. 1972. The distribution and ecology of the Puerto Rican Whip-poor-will, an endangered species. Living Bird 11: 207-239.

Chordeiles minor

1878. Cherrie, G. K. 1896. An apparently new *Chordeiles* from Costa Rica. Auk 13: 135-136.

1879. Cuello, J. P. 1966. First specimens of *Buteo albicaudatus* and *Chordeiles minor* in Uruguay. Condor 68: 310.

1880. Miller, A. H. 1959. A new race of nighthawk from the upper Magdalena Valley of Colombia. Proc. Biol. Soc. Washington 72: 155-158.

1881. Peters, J. L. 1927. The Virginia Nighthawk in the Bahamas. Auk 44: 421.

1882. Riley, J. H. 1903. A new subspecies of nighthawk from the Bahama Islands. Auk 20: 431-433.

1883. Selander, R. K. & M. Alvarez del Toro. 1955. A new race of Booming Nighthawk from southern Mexico. Condor 57: 144-147.

APODIFORMES

APODIDAE

1884. Lack, D. 1956. A review of the genera and nesting habits of swifts. Auk 73: 1-32.

Chaetura pelagica (includes *C. chapmani*)

1885. Araya, B., G. Millie & O. Magnere. 1972. A new swift for Chile *Chaetura pelagica* (Apodiformes,Apodidae). Mus. Nac. Hist. Nat. Not. Mens. 16: 11-12.
Valle del Lluta, Arica, Chile: 11 Dec 1971: Cropland: Obs.; spec.: *Chaetura pelagica*, *Hirundo rustica*: Distribution: 3.

1886. Beck, H. H. 1948. The winter home of the Chimney Swift; local man helps to find it. Bull. Lancaster Co., Pa., Bird Club 15: 1-2.

1887. Brackbill, H. 1950. The man who turned in the first Chimney Swift band from Peru. Migrant 21: 17-21.

1888. Chapman, F. M. 1931. The winter range of the Chimney Swift (*Chaetura pelagica*). Auk 48: 119-121.
Cocoplum, Boca del Toro, Panama: 24 Oct-12 Nov 1927: -------: Spec.: 32 species of nearctic migrants including *Chaetura pelagica* were collected, all but 6 of which normally winter in South America: Distribution: 4.

1889. Coffey, B. B., Jr. 1944. Winter home of Chimney Swifts discovered in northwestern Peru. Migrant 15: 37-38.

1890. ___________. 1956. Memphis banded Chimney Swift in Peru. Bird-Banding 27: 84.

1891. Collins, C. T. 1968. Notes on the biology of Chapman's Swift *Chaetura chapmani*. Amer. Mus. Novit. 2320: 1-15.

1892. Dexter, R. W. 1955. The life history of an Ohio Chimney Swift recovered in Tennessee. Bird-Banding 26: 71-72.

1893. ___________. 1979. Returns of non-resident banded Chimney Swifts at Kent State University - 1945-1972. Inland Bird Banding 51: 70-71.

1894. Ganier, A. F. 1944. More about the Chimney Swfits found in Peru. Migrant 15: 39-41.

1895. Laskey, A. R. 1944. Winter recovery of a Nashville Chimney Swift. Migrant 15: 42-44.

1896. Lincoln, F. C. 1944. Chimney Swift's winter home discovered. Auk 61: 604-609.

C. vauxi

1897. Dickinson, J. C. 1951. A nest of *Chaetura vauxi richmondi* in central Honduras. Wilson Bull. 63: 201-202.

TROCHILIDAE

1898. Berlioz, J. 1932. [Contribution to the study of the Trochilides of Mexico]. Oiseau, new ser. 2: 120-132.

1899. Boucard, A. 1892-1895. Genera of hummingbirds (etc.); pp. xiv + 411. Reprinted from The Hummingbird (London), 2, Jan., 1892, to 5, Dec., 1895.

1900. Cody, M. L. 1968. Interspecific territoriality among hummingbird species. Condor 70: 270-271.
Amboy, California: 22-26 Mar; 22-25 Apr 1967: Mohave Desert: Obs.: *Selasphorus sasin*, *S. platycercus*, *S. rufus*, *Stellula calliope*, *Calypte costae*: Intra- and interspecific territoriality in transients: 9.

1901. De Oca, R. M. 1875. [Ornithological essay on the hummingbirds of Mexico]. Mexico, Escalante Press.

1902. DesGranges, J. L. 1977. Interactions among resident and migrant hummingbirds in Mexico. Ph.D. Thesis, Toronto, McGill University.

1903. ____________. 1978. Organization of a tropical nectar feeding bird guild in a variable environment. Living Bird 17: 199-236.
Volcan de Colima, Colima, Mexico: Jan 1975, May-Jul 1975, Oct 1975-Feb 1976: Thorn forest, riparian forest, arid pine-oak, humid pine-oak: *Archilochus colubris*, *A. alexandri*, *Selasphorus rufus*, *S. sasin*: A guild of 21 species was studied; migrants, apparently due to smaller size, were subordinate to resident species; migrant species were territorial toward conspecifics: 66.

1904. ____________. & P. R. Grant. 1980. Migrant hummingbirds' accomodation into tropical communities. Pp. 395-409. in Migrant birds in the Neotropics: ecology, behavior, distribution, and conservation. (A. Keast & E. S. Morton, Eds.). Washington, D. C., Smithsonian Inst. Press.
Volcan de Colima, Mexico: Jan, May - Jul, Oct - Dec 1975; Jan, Feb 1976: Thorn forest; gallery forest; pine-oak: Obs.; FA; HA: 21 species of hummingbirds were observed, 4 of which are considered migrants - *Archilochus* sp., *Selasphorus rufus*, *S. sasin*, *Stellula calliope*: Foraging behavior; interspecific interaction: 26.

1905. Feinsinger, P. 1977. Notes on the hummingbirds of Monteverde, Cordillera de Tilaran. Costa Rica. Wilson Bull. 89: 159-164.
------- (elev. 1320-1540 m): Oct 1971-May 1973; Jun-Jul 1975: Lower montane rain, wet and moist forest; elfin forest: Obs.; B-R: Notes on 20 species of hummingbirds including *Archilochus colubris*: Abundance; habitat preference: 8.

1906. ____________. 1978. Community organization among neotropical nectar-feeding birds. Amer. Zool. 18: 779-795.
-------: -------: -------: Obs.; lit.; exp.: *Archilochus colubris*: Modes of resource exploitation used by nectar feeders in tropical communities: 79.

1907. ____________. 1980. Asynchronous migration patterns and the coexistence of tropical hummingbirds. Pp. 411-419. in Migrant birds in the Neotropics: ecology, behavior, distribution, and conservation. (A. Keast & E. S. Morton, Eds.). Washington, D. C., Smithsonian Inst. Press.
Cerro de la Muerte; Monteverde, Costa Rica; Trinidad; Tobago: May 1971 - Apr 1973; Apr 1977 - Mar 1978: Savannah; scrub; tropical forest seral stages: Obs.: *Archilochus colubris*, *Eugenes fulgens*: seasonal habitat use: 43.

1908. Greenwalt, H. C. 1960. Hummingbirds. New York, Doubleday.

1909. Lack, D. 1973. The numbers of species of hummingbirds in the West Indies. Evolution 27: 326-337.

1910. Lasiewski, R. C. & R. J. Lasiewski. 1967. Physiological responses of the Blue-throated and Rivoli's hummingbirds. Auk 84: 34-48.

1911. Lyon, D. L. 1976. A montane hummingbird territorial system in Oaxaca, Mexico. Wilson Bull. 88: 280-299.
Cerro San Felipe, Oaxaca, Mexico (elev. 2500-3000 m): early Jun-early Sep 1967-1969: Pine forest: Obs.; B-R: Six Trochilids investigated including *Lampornis clemenciae*, *Eugenes fulgens*: Intra- and interspecific interaction; food use: 15.

1912. Phillips, A. R. 1975. The migrations of Allen's and other hummingbirds. Condor 77: 196-205.
-------: -------: -------: Spec.: Selasphorus sasin, S. rufus, Stellula calliope: Important factors affecting evolution of routes include food availability and the probability of inclement weather along the various possible routes: Migration; distribution: 49.

1913. Pitelka, F. A. 1942. Territoriality and related problems in North American hummingbirds. Condor 44: 189-204.

1914. Ridgway, R. 1892. The hummingbirds. Report of the U. S. Natl. Mus. 1890: 253-383.

1915. Salvin, O. C. 1860. Notes on the hummingbirds of Guatemala. Ibis II: 259-272.

1916. Stiles, F. G. 1978. Temporal organization of flowering among the hummingbird foodplants of a tropical wet forest. Biotropica 10: 194-210.

1917. ___________. 1979. The annual cycle of a coadapted community of hummingbirds and flowers in a tropical wet forest of Costa Rica. Rev. Biol. Trop. 27: 75-102.

1918. Toledo, V. M. 1975. [The seasonality of flowers used by hummingbirds in a tropical wet forest in Mexico]. Biotropica 7: 63-70.

1919. Wagner, H. O. 1946. Food and feeding habits of Mexican hummingbirds. Wilson Bull. 58: 69-93.

1920. Wolf, L. L. 1970. The impact of seasonal flowering on the biology of some tropical Hummingbirds. Condor 72: 1-14.
14 km SW Las Canas, Guanacaste Prov., Costa Rica: Jan-Feb, 1967: Tropical dry forest: Obs.: Archilochus colubris: Food use; intra and interspecific interaction: 21.

1921. ___________, F. R. Hainsworth & F. G. Stiles. 1976. Ecological organization of a highland, tropical, hummingbird community. J. Anim. Ecol. 45: 349-379.
Cerro de la Meurte, Costa Rica (elev. 2950-3200 m): Jun 1963 - Mar 1974: Oak forest and seral stages: Eugenes fulgens: -------: 69.

Calypte costae

1922. MacKenzie-Grieve, R. C. & J. B. Tatum. 1974. Costa's Hummingbird, a new bird for Canada. Canadian Field 88: 91-92.

Calypte anna

1923. Stiles, F. G. 1971. Time, energy, and territoriality of the Anna Hummingbird (Calypte anna). Science 173: 818-821.

1924. ___________. 1973. Food supply and the annual cycle of the Anna Hummingbird. Univ. California Publ. Zool. 97: 1-109.

1925. van Rossem, A. J. 1945. The eastern distributional limts of the Anna Hummingbird in winter. Condor 47: 79-80.

Selasphorus rufus

1926. Armitage, K. 1955. Territorial behavior in fall migrant Rufous Hummingbirds. Condor 57: 239-240.

1927. Gass, C. L. 1974. Feeding territoriality in postbreeding migratory Rufous Hummingbirds. Ph.D. Thesis, Eugene, OR, Univ. of Oregon.

1928. ___________. 1978. Rufous Hummingbird feeding territoriality in a suboptimal habitat. Canadian J. Zool. 56: 1535-1539.

1929. ___________. 1979. Territory regulation, tenure, and migration in Rufous Hummingbirds. Canadian J. Zool. 57: 914-923.

1930. ___________, G. Angeher & J. Centa. 1976. Regulation of food supply by feeding territoriality in the Rufous Hummingbird. Canadian J. Zool. 54: 2046-2054.

Grizzly Lake, Salmon-Trinity Alps Primitive Area, NW California, USA: 10 Jul-22 Aug 1973: Mountain meadow (2200-2400 m): Obs.; Exper; LA: -------: Female and immature Selasphorus rufus hold temporary individual feeding territories during migration. Territory size is related to individual energy needs: 42.

1931. Kodric-Brown, A. & J. H. Brown. 1978. Influence of economics interspecific competition, and sexual dimorphism on territoriality of migrant Rufous Hummingbirds. Ecology 59: 285-296.

Nutrioso, Arizona, U.S.A.: 2 Jul-10 Aug 1975, 5-17 Aug 1976: Mountain meadow (2300 m): CB, obs.; exp.: -------: competition among conspecific transients for resources at stopover points: 37.

Eugenes fulgens

1932. Boyd, R. L. 1978. Rivoli's Hummingbird in Linn County, Kansas. Bull. Kansas Ornith. Soc. 29: 10-11.

1933. van Rossem, A. J. 1939. A race of the Rivoli Hummingbird from Arizona and northwestern Mexico. Proc. Biol. Soc. Washington 52: 7-8.

PICIFORMES

PICIDAE

Sphyrapicus varius

1934. Devillers, P. 1970. Identification and distribution in California of the Sphyrapicus varius group of Sapsuckers. California Birds 1: 47-76.

1935. Howell, T. R. 1953. Racial and sexual differences in migration in Sphyrapicus varius. Auk 70: 118-126.

PASSERIFORMES

TYRANNIDAE

1936. Cooke, W. W. 1909. The migration of flycatchers - 8th and concluding paper. Bird Lore 11: 12-14.
-------: -------: -------: Obs.: *Myriarchus* *crinitus*, *M*. *tyrannulus*, *M*. *tuberculifer*, *M*. *cinerascens*: Migration; distribution: 0.

1937. Fitzpatrick, J. W. 1980. Foraging behavior in neotropical tyrant flycatchers. Condor 82: 43-57.

1938. ___________. 1980. Wintering of North American tyrant flycatchers in the Neotropics. Pp. 67-78 *in* Migrant birds in the Neotropics: ecology, behavior, distribution and conservation (A. Keast & E. S. Morton, Eds.). Washington, D.C., Smithsonian Inst. Press.

1939. Hespenheide, H. A. 1964. Competition and the genus *Tyrannus*. Wilson Bull. 76: 265-281.

1940. Lanyon, W. E. 1978. Revision of the *Myiarchus* Flycatchers of South America. Bull. Amer. Mus. Nat. Hist. 161: 427-468.

1941. Moore, R. T. 1940. New races of *Empidonax* from Middle America. Proc. Biol. Soc. Washington 53: 23-29.

1942. ___________. 1940. Notes on Middle American Empidonaces. Auk 57: 349-389.

1943. Nelson, E. W. 1904. A revision of the North American mainland species of *Myiarchus*. Proc. Biol. Soc. Washington 17: 21-50.

1944. Sclater, P. L. 1859. A list of the Tyrant-birds of Mexico, with descriptions of some new species. Ibis 1: 436-445.

Tyrannus *tyrannus*

1945. Lévêque, R. 1978. [First sighting of an Eastern Kingbird *Tyrannus* *tyrannus* in the Falkland Islands]. Alauda 46: 362.

1946. Morton, E. S. 1971. Food and migration habits of the Eastern Kingbird in Panama. Auk 88: 925-926.
Canal Zone, Panama; Cali, Colombia: 1965-1966: -------: Obs.; spec.: *Tyrannus* *tyrannus*, *Contopus* spp., *Nuttallornis* *borealis*, *Empidonax* spp.: Behavior, food use: 7.

1947. Schmitt, G. & J. P. Hubbard. 1974. Eastern Kingbird in Paraguay. Wilson Bull. 86: 466.

T. *dominicensis*

1948. Brodkorb, P. 1950. Geographical variation in the Gray Kingbird, *Tyrannus* *dominicensis*. Auk 67: 333-334.

1949. Weber, W. C. & J. A. Jackson. 1977. First nesting record of Gray Kingbirds in Mississippi. Mississippi Kite 7: 10-12.

T. melancholichus (includes T. couchii)

1950. Ayers, A. Y., P. W. Sykes, Jr. & W. J. Sykes. 1980. Two more records of the Tropical Kingbird for Florida. Florida Field Nat. 8: 25-26.

1951. Garrido, O. H. 1980. [Situation of Tyrannus melancholichus (Aves: Tyrannidae) in Cuba]. Misc. Zool. (Cuba) 11: 1-2.

1952. Skutch, A. F. 1954. Life history of the Tropical Kingbird. Proc. Linn. Soc. New York 61-63: 21-38.

Pitangus sulphuratus

1953. Quesnel, V. C. 1956. The density of the population of breeding Kiskadees in Port of Spain. J. Trinidad Field Nat. Club: 24-25.

Myiarchus tyrannulus

1954. Deignan, H. G. 1949. The correct name for the Mexican Crested Flycatcher. Condor 51: 270.

1955. Lanyon, W. E. 1960. The Middle American populations of the Crested Flycatcher Myiarchus tyrannulus. Condor 62: 341-350.

M. cinerascens (includes nuttingi)

1956. Devillers, P. 1971. The alleged occurrence of Nutting's Flycatcher in Baja California. California Birds 2: 140.
-------: -------; -------: The only known specimen of Myiarchus nuttingi from Baja California is actually M. cinerascens: 4.

1957. Dickerman, R. W. & A. R. Phillips. 1953. First United States record of Myiarchus nuttingi. Condor 55: 101-102.

1958. Lanyon, W. E. 1961. Specific limits and distribution of Ash-throated and Nutting Flycatchers. Condor 63: 421-449.
-------: "summers" 1956-1960: Xerophytic scrub; tropical deciduous and thorn woodlands: Obs.; spec.; Analysis of vocalizations: Myiarchus cinerascens, M. nuttingi: Lanyon concludes that evidence favors recognition as two separate species: Systematics; distribution; ecology; vocalizations: 43.

1959. van Rossem, A. J. 1936. Description of a race of Myiarchus cineracens from El Salvador. Trans. San Diego Soc. Nat. Hist. 8: 115-118.

Empidonax traillii (includes E. alnorum)

1960. Gorski, L. J. 1969. Traill's Flycatchers of the "fitz-bew" songform wintering in Panama. Auk 86: 745-747.
Gamboa, Canal Zone and La Jagua, Panama: -------: Dec 1967-Jan 1968: -------: Obs.; exp.: Wintering Empidonax of the traillii-alnorum complex responded aggressively to playback of "fitz-bew" song types and attacked E. traillii-alnorum models; some evidence of habitat shift by individuals with onset of dry season: Behavior: 3.

1961. ___________. 1971. Traill's Flycatchers of the Fee-Bee-O songform wintering in Peru. Auk 88: 429-431.
Iquitos, Peru: Oct-Nov, 1968: Lowland scrub: Obs.; exp.: *Empidonax* of the *traillii-alnorum* complex responded aggressively to playback of "fee-bee-o" song types; these birds appeared to defend an area of roughly .2ha: 3.

1962. Oberholser, H. C. 1918. New light on the status of *Empidonax traillii* (Aubudon). Ohio Sci. 18: 85-98.

1963. Phillips, A. R. 1948. Geographic variation in *Empidonax traillii*. Auk 65: 507-514.

Empidonax difficilis (includes *E. flavescens*)

1964. Bordkorb, P. 1949. Variation in the North American forms of western flycatcher. Condor 51: 35-39.

1965. Johnston, N. K. 1973. Spring migration of the Western Flycatcher, with notes on seasonal changes in sex and age ratios. Bird-Banding 44: 205-220.

Contopus sordidulus

1966. Phillips, A. R. & K. C. Parkes. 1955. Taxonomic comments on the Western Wood Peewee. Condor 57: 244-246.

HIRUNDINIDAE

1967. Dugés, O. 1899. [Swallows of Guanajuato, Mexico]. Auk 16: 257-259.

1968. Pereyra, J. A. 1969. [Family Hirundinidae. Swallows]. Hornero 11: 1-19.

1969. Sharpe, R. B. & C. W. Wyatt. 1885-1895. A monograph of the Hirundinidae or family of swallows. (Taylor and Francis, London), 2 Vols. issued in 20 parts. Vol. 1, 356 pp; Vol. 2, 673 pp.

Stelgidopteryx ruficollis

1970. Brodkorb, P. 1942. Notes on some races of the Rough-winged Swallow. Condor 44: 214-217.

1971. Griscom, L. 1929. Notes on the Rough-winged Swallow (*Stelgidopteryx serripennis* (Aud.) and its allies. Proc. New England Zool. Club 11: 67-72.

1972. Ricklefs, R. E. 1972. Latitudinal variation in breeding productivity of the Rough-winged Swallow. Auk 89: 826-936.
New World (Canada to Argentina): -------: -------: Spec.; lit.: *Stelgidopteryx* *ruficollis*: "...the productivity of young per adult, was found to vary from a high of 1.75 in the Temperate Zone race *serripennis* to a low of 0.42 in the tropical race *aequalis*." "Estimates of the minimum adult survival rate necessary to maintain the population are 33 percent per year at 40° N and 67 per cent per year at the equator." -------: 23.

Hirundo *rustica*

1973. Yunick, R. P. 1977. A Caribbean Barn Swallow recovery. Auk 94: 149-150.

Petrochelidon *fulva*

1974. Selander, R. K. & J. K. Baker. 1957. The Cave Swallow in Texas. Condor 59: 345-363.

Progne *subis* (includes *chalybea*, *dominicensis* and *modesta*)

1975. Eisenmann, E. & F. Haverschmidt. 1970. Northward migration to Surinam of South American Martin (*Progne*). Condor 72: 368-369.
-------: -------: -------: Spec., obs., lit.: *Progne* *subis*: Taxonomic considerations; migration; distribution: 4.

TROGLODYTIDAE

1976. Oberholser, H. C. 1904. A review of the wrens of the genus *Troglodytes*. Proc. U. S. Natl. Mus. 27: 197-210.

1977. Paynter, R. A., Jr. 1957. Taxonomic notes on the World forms of *Troglodytes*. Breviora Mus. Comp. Zool. 71: 1-15.

1978. van Rossem, A. J. 1938. Notes on some Mexican and Central American Wrens of the Genera *Heleodytes*, *Troglodytes*, and *Nannorchilus*; and four new races. Bull. British Ornith. Club 59: 10-15.

Troglodytes *aedon* (includes *brunneicollis* and *musculus*)

1979. Barlow, J. C. 1978. Another colony of the Guadeloupe House Wren. Wilson Bull. 90: 635-637.

1980. Haverschmidt, F. 1952. Nesting behavior of the southern house wren in Surinam. Condor 54: 292-295.

1981. Palerm, E. 1972. [A new subspecies of House Wren for Uruguay *Troglodytes* *aedon* *chilensis* LESSON, 1830 (Passeriformes, Troglodytidae)]. Rev. Biol. Uruguay 1: 175-177.

1982. Skutch, A. F. 1953. Life history of the southern House Wren. Condor 55: 121-149.

Cistothorus palustris

1983. Oberholser, H. C. 1897. Critical remarks on *Citothorus palustris* (Wils.) and its western allies. Auk 14: 186-196.

C. platensis

1984. Dickerman, R. W. 1975. Revision of the Short-billed Marsh Wren (*Cistothorus platensis*) of Mexico and Central America. Amer. Mus. Novit. 2596.

-------: -------: -------: Spec.: -------: Mexican and Central American (including one winter resident form) populations are discussed and ranges mapped: 9.

MIMIDAE

Dumetella carolinensis

1985. Skutch, A. F. 1946. The Catbird - at home and abroad. Fauna (Zool. Soc. Philadelphia) 8: 87-89.

TURDIDAE

1986. Galindo, P., E. Mendez, & A. J. Adames. 1963. Banding of migrant thrushes in Almirante, Panama. Bird-Banding 34: 202-209.

-------: Oct 1962-May 1963: Second growth: B-R: *Hylochichla mustelina*, *Catharus ustulatus*, *C. fuscescens*, *C. minimus*: Relative abundance; timing of migration; routes: 1.

1987. Johnston, D. W. 1969. The thrushes of Grand Cayman, B.W.I. Condor 71: 120-128.

1988. Seebohm, H. & R. B. Sharpe. 1898-1902. A monograph of the Turdidae, or family of thrushes... Edited and compiled by R. Bowdler Sharpe... Henry Sotheran & Co., London, issued in 13 parts in 2 Vols. Vol. 1, 337 pp.; Vol. 2, 250 pp.

Catharus guttatus

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Port Henderson Hill (155m); Mona woods (185m); Irish Town (770m); Green Hills (1080m), Jamaica: Oct 1970 - May 1971; Sep 1971 - Apr 1972: Low xeric scrub, secondary riverine forest, thick scrub, montane forest: Spec.; BR: *Mniotilta varia*, *Helmitheros vermivorus*, *Dendroica caerulescens*, *Dendroica discolor*, *Seiurus aurocapillus*, *Geothlypis trichas*, *Setophaga ruticilla*: Weight and fat change in wintering migrants over time; some notes on behavior and habitat: 15.

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Fortune Bay, Grand Bahama Island: 25 Jan 1971: -------: Obs.: *Dumetella carolinensis*, *Dendroica coronata coronata*, *D. dominica flavescens*, *D. tigrina*, *D. palmarum*, *Geothlypis trichas*: Description of interactions between several species of migrant and resident birds at an Agave (*Agave braceana*) blossom; interpreted as maladaptive for territorial winter residents: 9.

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Shad Landing State Park, Worcester Co., Maryland, USA: Mar-Apr 1963-1966: Spec.; FA: Coniferous forest: Observations on foraging ecology; behavior and morphological adaptations: 9.

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Panama: "during the winter from December 1976 to May 1979": -------: Spec.; obs.; lit.; FA: Members of the Genus *Dendroica* that breed in eastern North America: Coniferous forest-related species evolved in that habitat; migration in these species evolved in response to climate cooling: 33.

2042. Griscom, L. & A. Sprunt. 1957. The warblers of North America. New York, Devin-Adair.

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Allegheny Front, border of Grant and Tucker Counties, West Virginia, U.S.A. (elev. 1200m): 1958-1979: Spruce forest: Obs.; B-R: 40,000 warblers of 33 species marked: Data indicate differences in timing of migration for different age-sex groupings in some species: -------: 0.

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Sites in Veracruz, Mexico; Barro Colorado Island, Panama; Trinidad; Colombia; Belize: 1971-1976, various dates, Dec.-Mar.: -------: Obs.; FA; lit: -------: Distribution; habitat use; foraging behavior; factors affecting distribution: 62.

2047. ___________ 1980. Migratory Parulidae: what can species co-occurrence in the north reveal about ecological plasticity and wintering patterns? Pp. 457-476. *in* Migrant birds in the Neotropics: ecology, behavior, distribution and conservation. (A. Keast & E. S. Morton, Eds.). Washington, D.C., Smithsonian Inst. Press. -------: -------: -------: Lit.: -------: -------: 50.

2048. Lack, D. & P. Lack. 1972. Wintering warblers in Jamaica. Living Bird 11: 129-153.

Port Henderson Hill; Mona Reservoir; Irish Town; Green Hills, Jamaica: Mid Oct 1970 - "summer" 1971: Arid scrub; riverine forest; garden and woodland; montane forest: Obs.: *Mniotilta varia*, *Limnothlypis swainsonii*, *Helmitheros vermivorus*, *Vermivora peregrina*, *Parula americana*, *Dendroica magnolia*, *D. tigrina*, *D. caerulescens*, *D. coronata*, *D. virens*, *D. dominica*, *D. discolor*, *D. palmarum*, *Seiurus aurocapillus*, *S. noveboracensis*, *S. motacilla*, *Geothlypis trichas*, *Setophaga ruticilla*: Little evidence of ecological overlap between winter resident and permanent resident passerine species: 21.

2049. Loftin, H., D. L. Hicks & E. Mendez. 1967. Additions to the avifauna of Panama: the Palm Warbler and the Connecticut Warbler. Condor 69: 309-320.

2050. MacArthur, R. H. 1958. Population ecology of some warblers of northeastern coniferous forest. Ecology 39: 599-619.
-------: Costa Rica: -------: 22 Dec 1956-9 Jan 1957: -------: Obs.; FA: *Mniotilta varia*, *Vermivora chrysoptera*, *V. peregrina*, *Dendroica petechia*, *D. virens*, *D. dominica*, *D. pensylvanica*, *Wilsonia pusilla*, *Setophaga ruticilla*: "...the general aspects of warbler behavior are nearly the same in winter and summer.": Feeding ecology; niche relationships: 58.

2051. Mengel, R. M. 1964. The probable history of species formation in some northern wood warblers. Living Bird 3: 9-44.

2052. Murray, B. G., Jr. 1979. Fall migration of Blackpoll and Yellow-rumped Warblers at Island Beach, New Jersey. Bird-Banding 50: 1-11.

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2055. Parnell, J. F. 1969. Habitat relations of the Parulidae during spring migration. Auk 86: 505-521.
Raleigh, North Carolina, U.S.A.: Mar-Jun 1962; Mar-Jun 1963: Pine; oak hickory; lowland deciduous forest; second growth: Obs.; FA: 31 species of warblers observed: "Analysis of the associations of each species with the major habitats in the study area showed nearly all species to exhibit some degree of habitat selection during migration.": Migrant ecology: 23.

2056. Penard, T. E. 1926. Warblers at sea. Auk: 376-377.
Caribbean Sea north of Haiti: 26 Oct 1921: -------: Obs.: *Dendroica caerulescens*, *Seiurus aurocapillus*, *S. noveboracensis*, *Geothlypis trichas*, *Setophaga ruticilla*: Distribution: 0.

2057. Post, W. 1978. Social and foraging behavior of warblers wintering in Puerto Rican Coastal scrub. Wilson Bull. 90: 197-214.
El Guayacan Island; La Cueva Island, Puerto Rico: 20 Dec 1975-15 Apr 1976: Xerophytic scrub; mangrove: Obs.; netting: *Mniotilta varia*, *Protonotaria citrea*, *Parula americana*, *Dendroica petechia*, *D. tigrina*, *D. caerulescens*, *D. coronata*, *D. dominica*, *D. striata*, *D. discolor*, *D. palmarum*, *Seiurus aurocapillus*, *S. noveboracensis*, *S. motacilla*, *Geothlypis trichas*, *Wilsonia citrina*, *Setophaga ruticilla*: "In the tropics North American migrants, because of their mobility and opportunistic behavior, may often concentrate on irregularly distributed food that is not effectively used by resident populations.": Foraging behavior: 23.

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Limnothlypis swainsonii

2062. Meanly, B. 1971. Natural history of the Swainson's Warbler. N. Amer. Fauna 69.

Vermivora pinus

2063. Abramson, I. J., W. J. Weiss & A. Dod. 1974. First record of Blue-winged Warbler for Hispaniola. Amer. Birds 28: 881-882.

V. chrysoptera

2064. Brewer, A. D. 1977. First occurence of the Golden-winged Warbler in Trinidad. Amer. Birds 31: 234.
Arima, Trinidad: 29 Dec 1976: Rain forest: Obs.: -------: Distribution: 3.

V. bachmanii

2065. Hamel, P. B., R. G. Hooper & L. M. Wright. 1976. Where is the Reverend Bachman's Warbler? South Carolina Wildlife 23: 9-13.

2066. Hooper, R. G. & P. B. Hamel. 1977. Nesting habitat of Bachman's Warbler - a review. Wilson Bull. 89: 373-379.

Vermivora peregrina

2067. Bull, J. L. 1961. Wintering Tennessee Warblers. Auk 78: 263-264.
Ossining, New York; Nashville, Tennessee, U.S.A.: 30 Jan 1955; 28 Jan 1950: -------: Spec.: *Vermivora peregrina*: Winter distribution: 1.

2068. Tramer, E. J. & T. R. Kemp. 1979. Diet-correlated variations in social behavior of wintering Tennessee Warblers. Auk 96: 186-187.
Monteverde, Puntarenas Prov., Costa Rica (elev. 1,400m): 14 Dec 1976-6 Mar 1977: -------: Obs.: *Vermivora peregrina*: -------: 2.

V. celata

2069. Bond, J. 1965. General notes. Orange-crowned Warbler. Gosse (Jamaica) 5: 18.

V. crissalis

2070. Van Tyne, J. 1936. The discovery of the nest of the Colima Warbler (*Vermivora crissalis*). Misc. Pub. Mus. Zool. Univ. Michigan 33.

Parula americana (includes *P. graysoni*, *P. pitiayumi*)

2071. Chapman, F. M. 1925. The relationships and distribution of the warblers of the genus *Compsothlypis*: a contribution to the study of the origin of Andean bird life. Auk 42: 193-208.
-------: -------: -------: Spec.; obs.; lit.: *Parula americana*, *P.* (*americana*) *graysoni*, *P.* (*americana*) *pitiayumi*: Taxonomy; distribution (maps): 15.

Peucedramus taeniatus

2072. George, W. G. 1962. The classification of the Olive Warbler. Amer. Mus. Novit. 2103: 1-41.

2073. Webster, J. D. 1958. Systematic notes on the Olive Warbler. Auk 75: 469-473.

Dendroica petechia (includes *D. erithachorides*)

2074. Haverschmidt, F. 1953. Notes on the Yellow Warbler in Surinam. Auk 70: 369-379.
-------: 1945-1953: -------: Obs.: *Dendroica petechia*: Arrival-departure dates; behavior: 3.

2075. Morton, E. S. 1976. The adaptive significance of dull-coloration in Yellow Warblers. Condor 78: 423.
Canal Zone, Panama: -------: -------: Obs.; spec.: *Dendroica petechia*: Dull coloration in immature *D. petechia* may be an adaptation to avoid aggression from brightly colored adults that defend winter feeding territories: Evolution; social organization; food use: 3.

2076. Ridgway, R. 1885. A review of the American "Golden Warblers." Proc. U. S. Natl. Mus. 8: 348-350.

2077. Snow, D. W. 1966. Annual cycle of the Yellow Warbler in the Galapagos. Bird-Banding 37: 44-49.
Santa Cruz (Indefatigable), Galapagos Islands: Feb 1963-Jun 1964: Mangrove: Obs.; B-R: *Dendroica petechia aureola*: Paired, territorial throughout the year; breeding season coincides with wet season (Dec-Apr); molt follows breeding: Life history: 4.

D. magnolia

2078. Flanigan, A. B. 1978. Ohio-banded Magnolia Warbler killed in Guatemala. IBB News 50: 222-224.

2079. Goodpasture, K. A. 1979. A transient Magnolia Warbler returns. Bird-Banding 50: 265.

D. tigrina

2080. Howell, T. R. 1958. Cape May Warbler in Nicaragua. Condor 60: 142.
12 Km E Managua, Dept. Managua, Nicaragua: 13 Jan 1957: -------: Spec.: *Dendroica tigrina*: Distribution: 1.

2081. Kale, H. 1967. Aggressive behavior by a migrating Cape May Warbler. Auk 84: 120-121.
Garden Key, Dry Tortugas: 8 May 1965: Flowering Agave: Obs.: *Dendroica tigrina*, *D. striata*, *D. coronata*, *D. caerulescens*, *D. palmarum*, *Geothlypis trichas*, *Setophaga ruticilla*: Interspecific territoriality by male transient *D. tigrina*: 2.

2082. Mason, C. R. 1976. Cape May Warbler in Middle America. Auk 93: 167-169.
-------: -------: -------: Obs.; lit.: *Dendroica tigrina*; several winter sightings listed from localities in Mexico and Central America; Mason suggests that the bird may be a scarce but regular winter resident in Central America: Distribution: 14.

2083. Skutch, A. F. 1967. Cape May Warbler in Costa Rica. Wilson Bull. 79: 118-119.

2084. Slud, P. 1957. Cape May Warbler in Central America. Condor 59: 340.
La Rioja, Pacific coast; Turrialba, Caribbean coast, Costa Rica: 21 Nov 1952; Dec 1954: -------: Spec.; obs.: *Dendroica tigrina*: Distribution: 2.

D. coronata includes *D. auduboni*

2085. Hubbard, J. P. 1969. The relationship and evolution of the *Dendroica coronata* complex. Auk 86: 393-432.

2086. ___________. 1970. Geographic variation in the *Dendroica coronata* complex. Wilson Bull. 82: 355-367.

2087. ___________. 1980. The extent and sequence of the molts of the yellow-rumped warbler *Dendroica coronata*. Nemouria 25: 1-9.

2088. King, R. 1976. Daily weight changes in migrant Yellow-rumped Warblers. Amer. Bird Bander 1: 172-173.

2089. Oberholser, H. C. 1921. A revision of the races of *Dendroica auduboni*. Ohio J. Sci. 21: 240-248.

2090. Wilz, K. J. & V. Giampa. 1978. Habitat use by Yellow-rumped Warblers at the northern extremities of their winter range. Wilson Bull. 90: 566-574.

2091. Woolfenden, G. E. 1962. Aggressive behavior by a wintering Myrtle Warbler. Auk 79: 713-714.

D. virens

2092. Rabenold, K. N. 1980. The Black-throated Green Warbler in Panama: a geographic and seasonal comparison of foraging. Pp. 297-307. in Migrant birds in the Neotropics: ecology, behavior, distribution and conservation. (A. Keast & E. S. Morton, Eds.). Washington, D.C., Smithsonian Inst. Press.
Brook Mtn., Maine; Mt. Collins, North Carolina; Chiriqui Prov., Panama: May-Jul. 1973-1975; Jan. 1977: spruce-fir; montane oak: Obs.; HA; FA: Dendroica virens: Foraging behavior: 34.

D. fusca

2093. Chipley, R. M. 1980. Nonbreeding ecology of the Blackburnian Warbler. Pp. 309-317. in Migrant birds in the Neotropics: ecology, behavior, distribution and conservation. (A. Keast & E. S. Morton, Eds.). Washington, D. C., Smithsonian Inst. Press.
Popayan, Dept. Cauca, Colombia (1,800): Jan - May, Sep - Dec 1972: second growth oak forest: Obs.; FA; Lit.: Dendroica fusca: Foraging behavior: 39.

D. chrysoparia

2094. Kroll, J. C. (Ms). Nesting success of the Golden-cheeked Warbler in relation to manipulation of the ash juniper habitat. Nagodoches, Texas, Stephen F. Austin Univ.

2095. Pulich, W. M. 1976. The Golden-cheeked Warbler. A bioecological study. Texas Parks Wildl. Dept., Austin, Texas.

D. dominica

2096. Craig, J. T. 1972. Two Fall Yellow-throated Warblers in California. California Birds 3: 17-18.

D. graciae

2097. Webster, J. D. 1961. A revision of Grace's Warbler. Auk 78: 554-566.

D. pensylvanica

2098. Bell, R. K. 1978. Blackpoll Warbler recovered from Santo Domingo. Redstart 45: 2-11.

2099. Smith, W. J. 1965. Dendroica pensylvanica in Trinidad. Auk 82: 279.

D. striata

2100. Boag, P. T. & L. M. Ratcliffe. 1979. First record of a Blackpoll Warbler for the Galapagos. Condor 81: 218-219.

2101. Murray, B. G., Jr. 1965. On the autumn migration of the Blackpoll Warbler. Wilson Bull. 77: 122-133.

2102. Nisbet, I. C. T., W. H. Drury & J. Baird. 1963. Weight loss during migration. Part I: Deposition and consumption of fat by the Blackpoll Warbler (Dendroica striata). Bird-Banding 34: 107-138.

2103. Sick, H. 1971. Blackpoll Warbler on winter quarters in Rio de Janiero, Brazil. Wilson Bull. 83: 198-200.

-------: 28 Jan-16 May 1969: Garden: Obs.: Dendroica striata: One individual wintered; several birds were seen during migration (31 Mar-16 May): Distribution: 9.

D. kirtlandii

2104. Adams, C. C. 1904. The migration route of Kirtland's Warbler. Bull. Michigan Ornith. Club 5: 14-21.

2105. Challinor, D. J. 1962. Recent sight record of Kirtland's Warbler in the Bahamas. Wilson Bull. 74: 290.

2106. Cory, C. B. 1879. Capture of Kirtland's Warbler (Dendroica kirtlandii) in the Bahama Islands. Bull. Nuttall Ornith. Club 4: 118.

2107. Hundley, M. H. 1967. Recent wintering records of the Kirtland's Warbler. Auk 84: 425-426.

2108. Lane, J. 1975. Kirtland's Warbler in Mexico. Amer. Birds 29: 144.

2109. Mayfield, H. F. 1960. The Kirtland's Warbler. Cranbrook Inst. Sci., Bloomfield Hills, Mich.

Michigan, U. S. A.; Bahama Islands: 1930-1956: Jack pine forest; xerophytic scrub: Spec.; obs.; lit.: Life history account of Dendroica kirtlandii includes list of specimens taken during migration and on the wintering ground in the Bahamas as well as information on behavior, reproduction and general ecology: 456.

2110. ___________. 1972. Winter habitat of Kirtland's Warbler. Wilson Bull. 84: 347-349.

Bahama Islands: -------: Thick, low (1 meter) scrub: Lit.: Dendroica kirtlandii: Distribution: 10.

2111. ___________. 1979. James A. Parmalee: eyewitness to Kirtland's Warbler discovery in Michigan. Jack-Pine Warbler 57: 133-134.

2112. Radabaugh, B. E. 1974. Kirtland's Warbler and its Bahama wintering grounds. Wilson Bull. 86: 374-383.

-------: 8 Feb-13 Apr 1972: 6 Jan-3 Apr 1973: Broadleaf scrub: Obs.: Dendroica kirtlandii: Playback of breeding song elicited approach and vocalization by a male: Distribution; habitat preference; behavior: 19.

2113. Ryel, L. A. 1979. On the population dynamics of Kirtland's Warbler. Jack-Pine Warbler 57: 76-83.

2114. __________. 1979. The tenth Kirtland's Warbler census, 1978. Jack-Pine Warbler 57: 141-147.

2115. Trautman, M. B. 1979. Experiences and thoughts relative to the Kirtland's Warbler. Jack-Pine Warbler 57: 135-140.

2116. Wood, N. A. 1904. Discovery of the breeding area of Kirtland's Warbler. Bull. Michigan Ornith. Club 5: 3-13.

D. discolor (includes *D. vitellina*)

2117. Bangs, O. 1919. The races of *Dendroica vitellina* Cory. Bull. Mus. Comp. Zool. 42: 493-495.

2118. Keith, A. R. 1979. Prairie Warbler at Trinidad. Amer. Birds 33: 745.

2119. Nolan, V., Jr. 1978. The ecology and behavior of the Prairie Warbler *Dendroica discolor*. Ornith. Monogr. 26.

2120. __________ & R. E. Mumford. 1965. An analysis of Prairie Warblers killed in Florida during nocturnal migration. Condor 67: 322-338.

D. palmarum

2121. Johnston, D. W. 1976. Races of Palm Warblers killed at a Florida TV tower. Florida Field Nat. 4: 22-24.

2122. Wunderle, J. M., Jr. 1978. Territorial defense of a nectar source by a Palm Warbler. Wilson Bull. 90: 297-299.

Miami, Florida, U.S.A.: 9 Mar 1975: Flowers of *Erythrina* tree: Obs.: *Parula americana*, *Dendroica coronata*, *D. palmarum*: Intra- and interspecific interaction: 5.

Seiurus aurocapillus

2123. Tikasingh, E. S. & R. ffrench. 1973. First record of the Ovenbird in Trinidad West Indies. Wilson Bull. 85: 86.

S. noveboracensis

2124. Eaton, S. W. 1957. A life history study of *Seiurus noveboracensis*. Science Studies, Centennial Celebration Issue. New York, St. Bonaventure University 19: 7-36.

2125. __________. 1957. Variation in *Seiurus noveboracensis*. Auk 74: 229-239.

2126. Schwartz, P. 1963. Orientation experiments with Northern Waterthrushes wintering in Venezuela. Proc. Ornith. Cong. 13: 481-484.

Caracas, Venezuela: Apr 1956-Nov 1962: Second growth deciduous forest: B-R; distant release: *Seiurus noveboracensis*: "*Seiurus noveboracensis* establishes winter (and transient) territories in Venezuela of 400 to 5,000m^2. When adults and 14 first-year resident birds were experimentally moved 10-65 km away, only the adults returned.": Behavior; ecology: 0.

2127. ___________. 1964. The Northern Waterthrush in Venezuela. Living Bird 3: 169-184.

Caracas, Venezuela: Apr 1956-Nov 1962: Deciduous second growth forest: Obs.; B-R: *Seiurus noveboracensis*, *Setophaga ruticilla*: Individual water thrushes were territorial and showed fidelity to the territory throughout a given season, returning to the same territory in subsequent seasons: Behavior; ecology: 7.

2128. Snow, D. W. & B. K. Snow. 1960. Northern Waterthrush returning to same winter quarters in successive winters. Auk 77: 351-352.

Northern Range, Trinidad: 1958-1959: Forest streams: B-R: *Seiurus noveboracensis*: Ortstreue: 0.

S. motacilla

2129. Short, L. L., Jr. & R. C. Banks. 1964. Louisiana Waterthrush in Baja, California. Condor 67: 188.

Oporornis formosus

2130. Karr, J. R. 1971. Wintering Kentucky Warblers. Bird-Banding 42: 299.

9° 9' 35" N, 79° 44' 36" W, Canal Zone, Panama: 1968-1971: "forest area": B-R: Recaptures of *Oporornis formosus* indicate that winter resident individuals of some species are sedentary and possibly territorial: 2.

O. philadelphia (includes *O. tolmiei*)

2131. Hall, G. A. 1979. Hybridization between Mourning and MacGillivray's Warblers. Bird-Banding 50: 101-107.

2132. Phillips, A. R. 1947. The races of MacGillivray's Warbler. Auk 64: 296-300.

-------: -------: -------: Spec.: *Oporornis* (*philadelphia*) *tolmiei*: "it is doubtful that it (*O. tolmiei*) is really a species distinct from the Mourning Warbler (*O. philadelphia*).": Taxonomy: 2.

Geothlypsis trichas

2133. Powell, G. V. N. & H. L. Jones. 1978. An observation of polygny in the Common Yellowthroat. Wilson Bull. 90: 656-657.

2134. Robbins, R. C. 1901. Maryland Yellow-throat at sea. Auk 18: 110-111.

2135. Thompson, C. F. & V. Nolan, Jr. 1973. Population biology of the Yellow-breasted Chat (*Icteria virens* L.) in southern Indiana. Ecol. Monogr. 43: 145-171.

Icteria virens

2136. van Rossem, A. J. 1939. A race of the Yellow-breasted Chat from the tropical zone of southern Sonora. Wilson Bull. 51: 156.

Wilsonia citrina

2137. Worth, C. B. & R. D. Delmont. 1969. Hooded Warbler in Trinidad, West Indies. Wilson Bull. 81: 215.

W. pusilla

2138. Stewart, R. M., R. P. Henderson & K. Darling. 1977. Breeding ecology of Wilson's Warbler in the High Sierra Nevada, California. Living Bird 16: 83-102.

W. canadensis

2139. Greenberg, R. & J. Gradwohl. Observations of paired Canada Warblers, *Wilsonia canadensis*, during migration in Panama. Ibis. (In Press).

Setophaga ruticilla

2140. Bennett, S. E. 1980. Interspecific competition and the niche of the American Redstart (*Setophaga ruticilla*) in wintering and breeding communities. Pp. 319-335. *in* Migrant birds in the Neotropics: ecology, behavior, distribution and conservation. (A. Keast & E. S. Morton, Eds.). Washington, D. C., Smithsonian Inst. Press.
New Hampshire; Maryland; Tennessee; Washington; Puerto Rico; Chiapas, Mexico; Grand Cayman: 1975-1977: Temperate deciduous forest; tropical lower montane forest; mangrove; scrub: Obs.; FA; lit.: Foraging behavior: 48.

2141. Parkes, K. C. 1961. Taxonomic relationships among the American Redstarts. Wilson Bull. 73: 374-379.

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2142. Beecher, W. J. 1950. Convergent evolution in the American orioles. Wilson Bull. 62: 51-86.

2143. ___________. 1951. Adaptations for food-getting in the American blackbirds. Auk 68: 411-440.

2144. Cruden, R. W. & V. M. Toledo. 1977. Oriole pollination of *Erythrina breviflora* (Leguminosae): evidence for a polytypic view of ornithophily. Plant Syst. Evol. 126: 393-403.

2145. Friedmann, H. 1929. The Cowbirds. Baltimore, Maryland, Charles C. Thomas Publishing.

2146. Garrido, O. H. 1970. Variation of the genus *Agelaius* (Aves: Icteridae) in Cuba. Poeyana Inst. Biol. Habana Ser A, 68: 1-18.
-------: 1962-1967: -------: Spec.; obs.: -------: Ecology; distribution; taxonomy: 18.

2147. Leck, C. F. 1974. Further observations of nectar feeding by orioles. Auk 91: 162-163.
Panama: Dec 1968-Mar 1969: Erythrina glauca and Ochroma limonensis flowers: Obs.: Icterus spurius, I. galbula: Food habits: 2.

2148. Lowther, P. 1975. Geographic and ecological variation in the family Icteridae. Wilson Bull. 87: 481-495.
-------: -------: -------: Lit.: All 95 species of Icterids are considered including the 11 that are nearctic migrants: "Intersexual competition is the selective force behind sexual dimorphism in size and epigamic sexual selection is the cause of plumage dimorphism."; "Plumage dimorphism is more common in the family at higher latitudes.": Migration; taxonomy; habitat; social interaction; mating system; dimorphism: 49.

2149. Short, L. L., Jr. 1968. Sympatry of Red-breasted Meadowlarks in Argentina and the taxonomy of meadowlarks (Aves: Leistes, Pezites, and Sturnella). Amer. Mus. Novit. 2349.

2150. Williams, G. G. 1951. Letter to the editor. Wilson Bull. 63: 52-54.
-------: -------: -------: Lit.: the Genus Icterus: "(The Black-throated Orioles) probably... originated in Central America, and from there invaded southwestern North America and northern South America": 1.

Dolichonyx oryzivorus

2151. Engles, W. L. 1961. Photoperiodism and the annual testicular cycle of the Boblink (Dolichonyx oryzivorus), a transequatorial migrant, as compared with two temperate zone migrants. Biol. Bull. 120: 140-147.

2152. ____________. 1962. Daylength and termination of photorefractoriness in the annual testicular cycle of the transequatorial migrant Dolichonyx (the Bobolink). Biol. Bull. 123: 94-104.

2153. ____________. 1969. Photoperiodically induced testicular recrudescence in the transequatorial migrant Dolichonyx relative to natural photoperiods. Biol. Bull. 137: 256-264.

2154. Gifford, C. E. & E. P. Odum. 1965. Bioenergetics of lipid desposition in the Bobolink, a transequatorial migrant. Condor 67: 383-403.

2155. Hamilton, W. J., III. 1962. Bobolink migratory pathways and their experimental analysis under night skies. Auk 79: 208-233.

2156. Hamner, W. M. & J. Stocking. 1970. Why don't Bobolinks breed in Brazil? Ecology 51: 743-751.
Davis, California (Laboratory): Jun 1967-Jul 1968: -------: Exp.: Experiments with captive birds indicate that the annual cycle of Dolichonyx oryzivorus is, at least in part, endogenously controlled: 31.

2157. Wittenberger, J. F. 1980. Vegetation structure, food supply and polygyny in Bobolinks (Dolichonyx oryzivorus). Ecology 61: 140-150.

2226. Britton, P. 1974. Relative biomass of Ethiopian and Palaearctic passerines in West Kenya habitats. Bull. British Ornith. Club 94: 108-113.

2227. Brown, J. L. 1964. The evolution of diversity in avian territorial systems. Wilson Bull. 76: 160-169.

2228. Buechner, H. K. & J. H. Buechner. 1970. A symposium of the Smithsonian Institution on the Avi Fauna of Northern Latin America. Smithson. Contrib. Zool. 26: 1-112.

2229. Buskirk, R. E. & W. H. Buskirk. 1976. Changes in arthropod abundance in a highland Costa Rican forest. Amer. Midl. Nat. 95: 288-298.

2230. Buskirk, W. H. 1972. Foraging ecology of birds in a tropical forest. Ph.D. Thesis. Davis, Univ. California.

2231. ___________. 1976. Social systems in a tropical forest avifauna. Amer. Nat. 110: 293-310.

Monteverde, Guanacaste Prov., Costa Rica (elev. 1550m): Aug-Oct 1970; Aug-Oct 197 : Lower montane rainforest: Obs.: *Buteo platypterus*, *Nuttaiornis borealis*, *Empidonax* (*difficilis*) *flavescens*, *Vireo falvifrons*, *V. solitarius*, *Mniotilta varia*, *Vermivora chrysoptera*, *Dendroica virens*, *D. fusca*, *Seiurus noveboracensis*, *Oporornis formosus*, *Wilsonia pusilla*, *Piranga rubra*: Food habits; sociality: 44.

2232. ___________, G. V. N. Powell, J. F. Wittenberger, R. E. Buskirk & T. U. Powell. 1972. Interspecific bird flocks in tropical highland Panama. Auk 89: 612-624.

Cerro Punta, Chiriqui Province, Panama (elev. 1,680 m): 12 Dec 1968-2 Jan 1969: "forest" and various seral stages: CB; obs; spec.: *Vireo philadelphicus*, *Mniotilta varia*, *Vermivora chrysoptera*, *Dendroica virens*, *Wilsonia pusilla*: Species roles in interspecific flocks: 16.

2233. Calvert, W. H., L. E. Hedrick & L. P. Brower. 1979. Mortality of the Monarch Butterfly (*Danaus plexippus*): Avian predation at five overwintering sites in Mexico. Science 204: 847-851.

-------: "winter" 1977, 1978: -------: Obs.; exp.: *Piranga flava*, *Pheucticus melanocephalus*: learned use of *Danaus plexippus* as food by avoiding cardenolide-laden individuals: 24.

2234. Chapin, J. P. 1932. The birds of the Belgian Congo. Pt. 1. Bull. Amer. Mus. Nat. Hist. 55.

2235. Chipley, R. M. 1976. The impact of wintering migrant Wood Warblers on resident insectivorous Passerines in a subtropical Colombian oak woods. Living Bird 15: 119-141.

Popayan, Cauca Dept., Colombia (elev. 1,800 m): Jan-Dec 1972: open oak forest: Obs., FA: *Coccyzus erythropthalmus*, *C. americanus*, *Myiodynastes luteiventris*, *Myiarchus crinitus*, *Contopus virens*, *Empidonax virescens*, *Catharus ustulatus*, *Vireo flavifrons*, *Mniotilta varia*, *Vermivora chrysoptera*, *V. peregrina*, *Dendroica caerulea*, *D. fusca*, *Oporornis philadelphia*, *Wilsonia canadensis*, *Setophaga ruticilla*, *Piranga rubra*, *P. olivacea*, *Pheucticus ludovicianus*: Migrant passerines made up 46.4% of all birds sighted but there was little evidence of migrants affecting residents or vice versa: 34.

2236. Church, V. 1974. Bird species diversity in Patagonia: a critique. Amer. Nat. 108: 235-236.

2237. Cody, M. L. 1968. On the methods of resource division in grassland bird communities. Amer. Nat. 102: 107-147.

2238. ___________. 1974. Competition and the structure of bird communities. Princeton, New Jersey, Princeton Univ. Press.

2239. ___________. 1975. Towards a theory of continental species diversities: bird distributions over Mediterranean habitat gradients. Pp. 214-257 *in* Ecology and evolution of communities (M. L. Cody & J. M. Diamond, Eds.) Cambridge, Massachusetts, Belknap Press.

2240. Colwell, R. K. 1973. Competition and coexistence in a simple tropical community. Amer. Nat. 107: 737-760.

Cartago Prov., Costa Rica (3,100m): Jan 1971: Oak forest and seral stages: Two altitudinal migrants (Trochilidae) interact with two residents (Trochilidae and Coerebidae) at flowers; migration; seasonal changes in resources and behavioral specializations (territoriality, stealing) allow coexistence: 47.

2241. Connell, J. & E. Orias. 1964. The ecological regulation of species diversity. Amer. Nat. 98: 399-414.

2242. Cox, G. W. & R. E. Ricklefs. 1977. Species diversity and ecological release in Caribbean land bird faunas. Oikos 28: 113-122.

Central Panama; Trinidad; Jamaica; St. Lucia; St. Kitts: 3 Feb-24 May 1970; 23 Jun-24 Jul 1972; 14-20 Aug 1973: Obs.; HA: Nearctic migrants were recorded but were omitted from analysis and discussion; ecological release in island breeding, non-raptorial land birds was extensive relative to mainland avifauna: 17.

2243. Cruden, R. W. & S. M. Hermann-Parker. 1977. Defense of feeding sites by orioles and Hepatic Tanagers in Mexico. Auk 94: 594-596.

Santa Maria, Morelos; El Alamo, Michoacan; Jungapeo, Michoacan, Mexico: Sep-Oct 1975: -------: Obs.: *Icterus galbula bullockii*, *I. cucullatus*, *Piranga flava*: All three species foraged in pairs or groups; the orioles usually dominated in interspecific interactions with either migrant or resident species: 9.

2244. ___________ & V. M. Toledo. 1976. Oriole pollination of *Erythrina breviflora* (Leguminosae): Evidence for a polytypic view of ornithophily. Plant Syst. Evol.
Morelos; Michoacan, Mexico: 11 days in 1974 and 1975: Second growth along streams: FA; obs.: *Dendroica townsendi*, *D. coronata auduboni*, *Oporornis* (*philadelphia*) *tolmiei*, *Icterus galbula bullockii*, *I. spurius*, *Piranga flava*, *Pheucticus melanocephalus*, *Pipilo erythrophthalmus*: Flowers of the common tropical tree *Erythrina breviflora* are adapted for pollination by passerines; most visits to these flowers were by nearctic migrants *Icterus galbula*, *I. cucullatus*, *Piranga flava* and *Dendroica townsendi*: Ecology; co-evolution: 28.

2245. Cruz, A. 1974. Feeding assemblages of Jamaican birds. Condor 76: 103-107.
Lluidas Vale, St. Catherine Parish, Jamaica: "spring" 1970: Wet limestone forest, *Cecropia* and *Ficus* trees in particular: Obs.; FA; spec.: Several species including *Piranga olivacea*: Use of fruits; interspecific competition: 19.

2246. Davis, D. E. 1946. A seasonal analysis of mixed flocks of birds in Brazil. Ecology 26: 168-181.

2247. de Roo, A. & J. Deheeger. 1969. Ecology of the Great Reed Warbler *Acrocephalus arundinaceus* (L.) wintering in the southern Congo savanna. Gerfaut 59: 260-275.

2248. Diamond, A. W. 1973. Habitats and feeding stations of St. Lucia forest birds. Ibis 115: 313-329.
-------: 10-13 Mar; 30 May-12 Jun; 30 Jul-6 Aug 1971: Scrub; humid forest; elfin woodland; seral stages; montane thicket: Obs.; FA: *Coccyzus minor*, *Caprimulgus* (*carolinensis*?) *rufus*, *Tyrannus dominicensis*, *Progne subis*, *Vireo* (*olivaceus*) *altiloquus*, *Dendroica petechia*: -------: 29.

2249. ___________. 1974. Annual cycles in Jamaican forest birds. J. Zool. Soc. London 173: 277-301.
Vicinity of Kingston, Jamaica: Oct 1970-Sep 1971: Xeric scrub; secondary riverine forest; scrub; montane forest; garden: Spec.; obs.: Annual molt and breeding cycles for resident populations of the following nearctic migrants - *Buteo jamaicensis*, *Falco sparverius*, *Zenaida asiatica*, *Chordeiles minor*, *Petrochelidon fulva*, *Progne* (*subis*) *dominicensis*, *Dendroica petechia*; cycles appear similar to those at higher latitudes (breed Mar-Sep); fat and molt data are presented; incubation patch was used as main indication of breeding though nest and song data from other sources were used as well: Life history: 32.

2250. Dorst, J. 1956. [Ecological research on the birds of the high Peruvian plateau]. Travaux Inst. Franc. Etu. Andines 5: 83-140.

2251. ___________. 1957. The puya stands of the Peruvian high plateaux: a bird habitat. Ibis 99: 594-599.

2252. ___________. 1963. [Some ecological adaptations of birds from the high Peruvian Andes]. Proc. Int. Ornith. Congr. 13: 658-665.

2253. Eisenmann, E. 1961. Favorite foods of neotropical birds: flying termites and Cecropia catkins. Auk 78: 636-638.

2254. Elgood, J. R., R. E. Sharland & P. Ward. 1966. Palaearctic migrants in Nigeria. Ibis 108: 84-116.

2255. Emlen, J. T. 1977. The land bird populations of Grand Bahama Island: a study in faunal, community and niche dynamics. Ornith. Monogr. 24.

Grand Bahama and southern Florida: Jan-May 1968; Jan-May 1969; Jan-May 1971: Pine forest and seral stages; mangrove: 8 spring transients, 30 permanent residents, 3 summer residents: No positive correlation between avian biomass and biomass of insect samples was found; no shift in distribution of permanent residents was detected with departure of winter residents; winter residents and permanent residents had similar mean foraging specialization values "but winter resident element was more varied": food supply may not be critical as a limiting factor during the Jan-May period for the avian community: 75.

2256. ___________. 1978. Density anomalies and regulatory mechanisms in land bird populations on the Florida peninsula. Amer. Nat. 112: 265-286.

Florida; Grand Bahama and Andros Island, Bahamas: Jan-Mar 1968; Jan-Mar 1971; Shrub pine stands: Obs.; HA; FA; 37 species of nearctic migrants are considered; some are resident in the Bahamas: Relatively low population and species densities in Florida winter and permanent resident avifauna are due to "... swamping of incipient adaptive mutations by gene flow from range centers ..."; notes on foraging behavior of winter residents in the Bahamas: 24.

2257. ___________. 1980. Interaction of migrant and resident land birds in Florida and Bahama pinelands. Pp. 133-143. in Migrant birds in the Neotropics: ecology, behavior, distribution and conservation. (A. Keast & E. S. Morton, Eds.). Washington, D.C., Smithsonian Inst. Press.

Grand Bahama Island; Homestead, Florida: Jan-May 1968, 1969, 1971: Pine forest, scrub, marsh, mangrove, beach: Obs.; HA; FA: Migrant and resident ecology, diversity and evolution: 18.

2258. Feinsinger, P. 1976. Organization of a tropical guild of nectarivorous birds. Ecol. Monogr. 46: 257-291.

Monteverde, Costa Rica (elev. 1300 m); Nov 1971-Apr 1973: Mixed pasture-edge trees and scrub; secondary scrub; unimproved bean fields; mature transition zone forest; abandoned wet-forest pasture; mature wet forest-rain forest transition; Obs.; HA; FA; spec.; CB; BR: Archilochus colubris, Vermivora peregrina and 13 tropical resident trochilids: foraging behavior, niche relationships with residents: 117.

2259. Fenton, M. B. & T. H. Fleming. 1976. Ecological interactions between bats and nocturnal birds. Biotropica 8: 104-110.

2260. Fisk, E. J. 1978. Site tenacity in wintering migrants in Florida. N. Amer. Bird Bander 3: 145.
Homestead, Fla., U.S.A.: 1969-1978: -------: B-R: *Accipiter striatus*, *Caprimulgus vociferus*, *Sayornis phoebe*, *Empidonax minimus*, *Troglodytes aedon*, *Dumetella carolinensis*, *Catharus guttatus*, *Dendroica coronata*, *D. palmarum*, *Seiurus aurocapillus*, *Icteria virens*, *Icterus galbula*, *Pheucticus ludovicianus*, *Passerina cyanea*, *Carduelis tristis*: Most wintering individuals were immature birds: Ortstreue; distribution: O.

2261. Fogden, M. P. L. 1972. The seasonality and population dynamics of equatorial forest birds in Sarawak. Ibis 114: 307-343.

2262. Foster, M. S. 1974. Rain, feeding behavior and clutch size in tropical birds. Auk 91: 722-726.

2263. __________. 1975. The overlap of molting and breeding in some tropical birds. Condor 77: 304-314.

2264. __________. 1977. Ecological and nutritional effect of food scarcity on a tropical frugivorous bird and its fruit source. Ecology 58: 73-85.

2265. Frankie, G. W., H. G. Baker & P. A. Opler. 1979. Comparative phenological studies of trees in tropical wet and dry forests in the lowlands of Costa Rica. J. Ecology 62: 881-913.

2266. Fretwell, S. D. 1969. Dominance behavior and winter habitat distribution in juncos (*Junco hyemalis*). Bird Banding 34: 293-306.

2267. __________. 1972. Populations in a seasonal environment. Princeton, N. J., Princeton Univ. Press.

2268. __________ & H. L. Lucas. 1970. On territorial behavior and other factors influencing habitat distribution in birds. Part 1, Theoretical development. Acta Biotheoretica 19: 16-36.

2269. Gradwohl, J. & R. Greenberg. 1980. The formation of antwren flocks on Barro Colorado Island, Panama. Auk 97: 385-395.
-------: 15 Oct 1977-20 May 1978: Lowland moist tropical forest: Obs.; B-R; VA: 34 species recorded including *Myiarchus tuberculifer*, *Empidonax virescens*, *Vireo philadelphicus*, *Mniotilta varia*, *Dendroica pensylvanica*, *D. castanea*, *Setophaga ruticilla*: Social interaction; foraging behavior: 17.

2270. Grant, P. R. 1965. The fat condition of some island birds. Ibis 107: 350-356.

2271. __________. 1966. Further information on the relative length of tarsus in land birds. Yale Peabody Mus. Nat. Hist. Postilla 18: 1-13.
-------: -------: -------: Spec.; lit.: *Vireo griseus*, *Dendroica tigrina*, *D. fusca*, *D. virens*, *D. castanea*, *D. coronata*: Foraging ecology and morphological adaptations: 26.

2272. ____________. 1966. Ecological compatibility of bird species on islands. Amer. Nat. 100: 451-462.

2273. ____________. 1966. The density of land birds on the Tres Marias Islands in Mexico. I. Numbers and biomass. Canadian J. Zool. 44: 391-400.

2274. ____________. 1966. The density of land birds on the Tres Marias Islands in Mexico. II. Distribution of abundances in the community. Canadian J. Zool. 44: 1023-1030.

-------: --------: Tropical deciduous: Lit.: Buteo jamaicensis; Vireo (olivaceus) flavoviridis, V. gilvus, Parula (americana) pitiayumi. Various aspects of community ecology are discussed using data from censuses of island adjacent mainland avifauna: 31.

2275. ____________. 1967. Bill length variability in birds of the Tres Marias Islands, Mexico. Canadian J. Zool. 45: 805-815.

-------: -------: Tropical deciduous; Thorn scrub; Hornbeam Oak; Pine-oak: Spec.; lit.: Cathartes aura, Buteo jamaicensis, Vireo (olivaceus) flavoviridis: Various factors affecting bill length: 32.

2276. ____________ & B. R. Grant. 1980. Annual variation in finch numbers foraging and food supply on isla Daphne Major Galapagos, Ecuador. Oecologia 46: 55-62.

2277. Greenberg, R. (ms). Dissimilar bill morphology in tropical versus temperate forest foliage-gleaning birds.

2278. ____________. The frugivorous behavior of some tropical forest wood warblers. Biotropica. (In Press).

2279. ____________. The abundance and seasonality of forest canopy birds on Barro Colorado. Biotropica. (In Press).

2280. Haffer, J. 1967. Interspecific competition as a possible factor in limiting the range of some trans-Andean forest birds. Hornero 10: 438-440.

2281. Hamilton, T. H. & R. H. Barth. 1962. The biological significance of season change in male plumage appearance in some new world migratory bird species. Amer. Nat. 96: 129-144.

-------: -------: -------: Lit.; spec.: -------: Hamilton and Barth suggest that change from a "bright" breeding plumage to a "dull" winter plumage is due in part to selection favoring a reduction of intraspecific competition; they also speculate that dimorphism is selected for in migratory species due to the necessity for forming breeding season pair bonds rapidly: 28.

2282. Haverschmidt, F. 1971. Large number of birds exploiting a fruit tree in Surinam. Wilson Bull. 83: 104-105.

Phedra, Surinam River, Surinam: 13 Nov 1969: Fruit-bearing tree (Guarea guara) in second growth: 23 species recorded feeding in the tree including Vireo olivaceus : Ecology: 0.

2283. Herrera, C. M. 1978. [Feeding ecology of the Robin (*Erithacus* *rubecula*) during its wintering in oak woods of the south of Spain]. Donana Acta Vert. 4 (In Press).

2284. ___________. 1978. Ecological correlates of residence and non-residence in a Mediterranean passerine bird community. J. Animal Ecol. 47: 871-890.
N. W. Huelva Province, Spain: Mar 1975-Apr 1976: Oak woodland: Obs.; FA; spec.: -------: Resident species appear to outcompete migrants for the stable resources of the community: 81.

2285. Hespenheide, H. A. 1975. Selective predation by two swifts and a swallow in Central America. Ibis 117: 82-99.
Osa Peninsula, Puntarenas Province, Costa Rca; Canal Zone Road K-2, Contractors Hill, Panama and Madden Forest, Panama Canal Zone Govt. Forest Preserve, Panama: Feb-Mar; Jul-Aug 1968: Aug-Sep 1969: Primary forest and seral stages: Spec.; LA; exp.; obs.: *Stelgidopteryx ruficollis* (presumably resident populations): Foods used; foraging habits: 43.

2286. ___________. 1980. Bird community structure in two Panama forests: Residents, migrants and seasonality during the non-breeding season. Pp. 227-237 *in* Migrant birds in the Neotropics: ecology, behavior, distribution and conservation (A. Keast & E. S. Morton, Eds.). Washington, D.C., Smithsonian Inst. Press.
Canal Zone, Panama: Oct 1969 - Mar 1970: Dry forest; moist forest: Obs.: 38 migrants treated: status: 32.

2287. Hilden, O. 1965. Habitat selection in birds. Ann. Zool. Fennici 2: 53-75.

2288. Hilty, S. L. 1977. Food supply in a tropical frugivorous bird community. Ph.D. Thesis, Tucson, Univ. Arizona.

2289. ___________. 1980. Relative abundance of North American temperate zone breeding migrants in western Colombia and their impact at fruiting trees. Pp. 265-271. *in* Migrant birds in the Neotropics: ecology, behavior, distribution and conservation. (A. Keast & E. S. Morton, Eds.). Washington, D.C., Smithsonian Inst. Press.
Anchicaya Valley, Colombia (100-1,900m): May 1972 - Jun 1973: lowland, premontane and montane forest: Obs.; B-R: 22 migrant species observed: status: 14.

2290. Horn, H. S. & R. H. MacArthur. 1972. Competition among fugitive species in a harlequin environment. Ecology 53: 749-752.

2291. Howe, H. F. 1977. Bird avitivity and seed dispersal of a tropical wet forest tree. Ecology 58: 539-550.

2292. ___________ & D. De Steven. 1979. Fruit producton, migrant bird visitation and seed dispersal of Guarea glabra in Panama. Oecologia 39: 185-196.
Barro Colorado Island, Panama: 20 Mar-11 May 1978: Fruiting Guarea glabra trees in wet tropical forest: Obs.; HA: 7 of 19 species using fruits were migrants - Myiarchus crinitus, Contopus spp., Catharus ustulatus, Vireo olivaceus, Vermivora peregrina, Dendroica pensylvanica, Piranga rubra: No evidence that any one species was dependent on these fruits or that the plant depended on one species of bird for dispersal; no evidence of interspecific competition for fruits; fruiting seasons may be keyed to times of peak migrant passage: Ecology; co-evolution: 24.

2293. ___________ & G. F. Estabrook. 1977. On intraspecific competition for avian dispersers in tropical trees. Amer. Nat. 111: 817-832.
-------: -------: -------: Lit.: Models are developed predicting plant fruit characteristics resulting from intraspecific competition for avian dispersers; nearctic migrants are important dispersal agents for some plant species: 50.

2294. ___________ & R. B. Primack. 1975. Differential seed dispersal by birds of the tree Casearia nitida (Flacourtiaceae). Biotropica 7: 278-283.

2295. ___________ & G. A. Vande Kerckhove. 1979. Fecundity and seed dispersal of a tropical tree. Ecology 60: 180-189.
Parque Nacional Santa Rosa, Guanacaste Prov., Costa Rica: 12 Sep-22 Oct 1976: Fruiting Casearia corymbosa trees in deciduous forest: Obs.; VA: 14 species fed on fruits of this tree including Catharus ustulatus, Vireo olivaceus olivaceus, V. o. flavoviridis, V. philadelphicus; V. o. flavoviridis accounted for 70% of feeding visits by birds; frugivores at the tree were attacked on 3 occasions, one attack by Falco sparverius on a V. o. flavoviridis was successful; the plant Casearia corymbosa appears to promote facultative specialization among frugivores by producing a limited number of fruits per day: Co-evolution; feeding ecology: 43.

2296. Howell, T. R. 1971. An ecological study of the birds of the lowland pine savanna and adjacent rain forest in northeastern Nicaragua. Living Bird 10: 185-242.
Waspam, Comaria de El Cabo, 120 km NW Puerto Cabezas, Nicaragua: 2-4 Feb 1955; 22 Jan-20 Feb 1962; 16 Jan-1 Feb 1963; 11-27 Aug 1965; 10-26 Mar 1966; 18 Nov-1 Dec 1966; 15-30 Apr 1967: Pine savannah; rain forest; grassland: Obs.; HA: 57 species recorded in pine savannah; 9 nearctic migrants that occur as winter residents; 116 species recorded in rain forest, 15 of which were winter resident populations of nearctic migrants: Effect of migrants on the resident avifauna of the communities studied appeared to be "negligible": Distribution; habitat; foraging behavior: 60.

2297. Hutchinson, G. E. 1959; Homage to Santa Rosalia, or why are there so many kinds of animals? Amer. Nat. 93: 145-159.

2298. Huxley, J. S. 1934. Threat and warning coloration in birds with a general discussion of the biological functions of color. Proc. Int. Ornith. Cong. 8: 430-455.

2299. Janzen, D. H. 1980. Heterogeneity of potential food abundance for tropical small land birds. Pp. 545-552. in Migrant birds in the Neotropics: ecology, behavior, distribution and conservation. (A. Keast & E. S. Morton, Eds.). Washington, D.C., Smithsonian Inst. Press.

2300. Johnson, R. A. 1954. The behavior of birds attending army ant raids on Barro Colorado Island, Panama Canal Zone. Proc. Linnaean Soc. New York 63-65: 41-70.

2301. Johnson, T. B. 1980. Resident and North American migrant bird interactions in the Santa Marta highlands, Northern Colombia. Pp. 239-247. in Migrant birds in the Neotropics: ecology, behavior, distribution and conservation. (A. Keast & E. S. Morton, Eds.). Washington, D.C., Smithsonian Inst. Press.

25km SE Santa Marta, Magdalena Dept., Colombia (200m elev.): Sep. 1972 - May 1973: Moist, montane forest: Obs.: 25 migrant species recorded and a total of 144 species observed: Status: 9.

2302. Johnston, D. W. 1975. Ecological analysis of the Cayman Island avifauna. Bull. Florida State Mus. Biol. Sci. 19: 299-300.

2303. Jones, S. E. 1977. Coexistance in mixed species antwren flocks. Oikos 29: 366-375.

2304. Karr, J. R. 1971. Structure of avian communities in selected Panama and Illinois habitats. Ecol. Monogr. 41: 207-230.

All sites located within 40 km of Panama City, Panama: 1 Jul 1968 - 31 Jul 1969: Grassland; shrub; moist lowland forest: Obs.; B-R; VA; HA: 291 species recorded; 55 species of nearctic migrants (including those with permanent resident populations): Ecology; species diversity; community structure: 64.

2305. ____________. 1975. Production, energy pathways, and community diversity in forest birds. Pp. 161-176 in Tropical ecological systems: Trends in terrestrial and aquatic research. (F. B. Golley & E. Medina, Eds.). New York, Springer-Verlag.

2306. ____________. 1976. Within- and between- habitat avian diversity in African and Neotropical lowland habitats. Ecol. Monogr. 46: 457-481.

2307. ____________. 1976. On the relative abundance of migrants from the North Temperate Zone in tropical habitats. Wilson Bull. 88: 433-458.

Central Panama; Mt. Liberia; Maharashtra, India: Pasoh Forest Preserve, Malaysia: -------: Grassland; shrub; forest: Obs.; B-R: "In general, migrants harvest superabundant and/or sporadically available food resources." "Some seasonal movements associated with wet and dry seasons and varying food abundances have been documented in various parts of the tropics." "... densities of migrants on islands tend to be higher than densities on nearby mainland areas.": 47.

2308. ____________. 1976. Seasonality, resource availability and community diversity in tropical bird communities. Amer. Nat.

Panama: Jul 1968-Jul 1969: Grassland; most forest; shrub: Obs.; B-R; FA; VA: -------: Migrant impact on tropical communities thought to be "not great"; nearctic migrants "winter more commonly in marginal habitats ... and tend to exploit food resources that are superabundant and/or sporadically available.": 63.

2309. ____________. 1977. Ecological correlates of rarity in a tropical forest bird community. Auk 94:

2310.

2311. ____________ & R. R. Roth. 1971. Vegetation structure and avian diversity in several new world areas. Amer. Nat. 105: 423-435.

2312. ____________, D. W. Schemske & N. Brokaw. 1980. Temporal variation in the avifauna on the undergrowth of a tropical forest. *in* Seasonal rhythms in a tropical forest. (E. G. Leigh & A. S. Rand, Eds.). Washington, D. C., Smithsonian Inst. Press.

2313. Keast, A. & E. S. Morton. 1980. Migrant birds in the Neotropics: ecology, behavior, distribution, and conservation. Washington, D.C., Smithsonian Inst. Press.

-------: -------: -------: -------: -------: This volume contains 38 papers on topics relating to various aspects of the ecology of nearctic migrants in the neotropics. Summaries of each of the papers are given in this bibliography under the specific topic, by author.

2314. Kepler, C. B. & A. K. Kepler. 1970. Preliminary comparison of bird species diversity and density in Luquilla and Guanica forests. Pp. E-183-E-188 *in* A tropical rain forest (H. T. Odum, Ed.). Oak Ridge, Tenn. U. S. Atomic Energy Commission.

2315. Ketterson, E. D. & V. Nolan, Jr. 1976. Geographic variation and its climatic correlates in the sex ratio of eastern-wintering Dark-eyed Juncos (*Junco hyemalis hyemalis*). Ecology 57: 679-693.

2316. Kikkawa, J. 1974. Comparison of avian communities between wet and semiarid habitats of eastern Australia. Aust. Wildlife Res. 1: 107-116.

2317. Kilham, L. 1980. Assemblages of Tree Swallows as information centers. Florida Field Nat. 8: 26-28.

2318. Klopfer, P. H. 1965. Behavioral aspects of habitat selection: A preliminary report on stereotypy in foliage preferences of birds. Wilson Bull. 77: 376-381.

-------: -------: Laboratory: Exp. Tropical residents appear to show greater "behavioral sterotypy" than individuals of species that breed in temperate regions: 8.

2319. ____________. 1967. Behavioral sterotypy in birds. Wilson Bull. 79: 290-300.

2320. ____________ & R. H. MacArthur. 1961. On the causes of tropical species diversity: niche overlap. Amer. Nat. 95: 223-226.

2321. ____________, D. I. Rubinstein, R. S. Ridgely & R. J. Barnett. 1974. Migration and species diversity in the tropics. Proc. Acad. Nat. Sci. USA 71: 339-340.

-------: -------: -------: Lit.: -------: Nearctic migrants do not breed in tropical wintering areas because resources available are "insufficient to maintain the more rapid development rates of birds adapted to the seasonally richer temperate zones." Theory: 12.

2322. Lack, D. 1976. Island biology. Stud. Ecol. 3. Berkeley, Univ. California Press.

2323. Land, H. C. 1963. A tropical feeding tree. Wilson Bull. 75: 199-200.

Matias de Galvez, Izabel Dept., Guatemala: Jun-Aug 1961: Lowland rainforest; mostly in one fruiting tree (*Miconia trinervia*): 57 species including *Myiarchus tuberculifer*: Food habits: 0.

2324. Leck, C. F. 1968. A feeding congregation of local and migratory birds in the mountains of Panama. Bird Banding 39: 318.

Cerro Punta, Chiriqui Prov., Panama (6,000 ft): 31 Mar 1968: Second growth: B-R; obs.: *Catharus ustulatus* (flocks), *Pheucticus ludovicianus*: Distribution; feeding habits:

2325. ____________. 1969. Observations of birds exploiting a Central American fruit tree. Wilson Bull. 81: 264-269.

Rio Higueron, Finca Jimenez, Guanacaste Prov., Costa Rica: 11-15 Jul 1967: Disturbed river-bottom forest: Obs.: *Vireo (olivaceus) flavoviridis*: 16 species used fruits of the tree *Trichilia cuneata*; *V. o. flavoviridis* and *Centurus aurifrons* were the two most frequent visitors to the tree: Feeding ecology: 10.

2326. ____________. 1970. The seasonal ecology of fruit and nectar eating birds in lower Middle America. Ph.D. Thesis. Ithaca, N.Y., Cornell Univ.

2327. ____________. 1971. Measurement of social attractions between tropical Passerine birds. Wilson Bull. 83: 278-283.

2328. ____________. 1971. Overlap in the diet of some neotropical birds. Living Bird 10: 89-106.

Barro Colorado Island, Canal Zone, Panama: Sep 1968-Apr 1969: Lowland rain forest: Obs.: *Vireo olivaceus*, *Vermivora peregrina*, *Wilsonia pusilla*: Feeding biology: 25.

2329. ____________. 1972. The impact of some North American migrants at fruiting trees in Panama. Auk 89: 842-850.
El Hato; Cerro Punta; Barro Colorado Island, Panama: Mar-Apr 1968; Sep 1968-Apr 1969: Agricultural area; lowland rainforest: Obs.; B-R: Little evidence of interspecific competition for fruits; of 48 species observed taking fruits during the study, 18 were migrants; migrants responsible for 10% of observed avian fruit utilization in lowland rain forest, 45% in upland forest (Over 6000') (mostly by *Catharus ustulatus*): Some evidence of male-female pairing in 3 species of wintering migrants: Feeding ecology: 17.

2330. ____________. 1972. Observations of birds at *Cecropia* trees in Puerto Rico. Wilson Bull. 84: 498-500.
Luquillo National Forest, eastern Puerto Rico: 17-27 Jan 1970; 15-26 Jan 1971: Wet montane forest and edge: Obs.: *Mniotilta varia*, *Parula americana*, *Dendroica tigrina*, *D. caerulescens*, *D. pensylvanica*, *Setophaga ruticilla*: Migrants make up a larger percentage of visits to *Cecropia* trees on the islands of the West Indies than on Central American mainland sites: 4.

2331. ____________. 1972. Seasonal changes in feeding pressures of fruit- and nectar- eating birds in Panama. Condor 74: 54-60.
Barro Colorado Island, Canal Zone, Panama: Sep 1968-Apr 1969: Lowland rainforest: Obs.; B-R; Exp.: *Catharus ustulatus*, *Vireo olivaceus*, *Dendroica petechia*, *D. pensylvanica*, *Piranga rubra*: Intra- and interspecific competition for fruits: 28.

2332. ____________. 1973. Dominance relationships in nectar feeding birds at St. Croix. Auk 90: 431-432.

2333. ____________ & S. L. Hilty. 1968. A feeding congregation of local and migratory birds in the mountains of Panama. Bird-Banding 34: 318.
Cerro Punta, Chiriqui Prov., Panama (elev. 6000'): 31 Mar 1968: Humid montane forest second growth especially fruiting *Leandra subseriata*: B-R; obs.: 17 frugivorous species observed including *Catharus ustulatus*, *Pheucticus ludovicianus*: Food use: 0.

2334. ____________ & N. Smythe. 1970. Comments on the seasonality of fruiting in the neotropics. Amer. Nat. 104: 583-585.

2335. Lein, M. R. 1972. A trophic comparison of avifaunas. Syst. Zool. 21: 135-150.

2336. Lovejoy, T. E. 1971. Diversity and abundance patterns of Lower Amazonian rain forest birds. Ph.D. Thesis, New Haven, Yale Univ.

2337. ____________. 1972. Bird species diversity and composition in Amazonian rain forests. Amer. Zool. 12: 711-712.

2338. ___________. 1974. Bird diversity and abundance in Amazon forest communities. Living Bird 13: 127-191.

Belem, Para, Brasil: 1967-1969: Swamp; rain forest: B-R; veg. analysis: 15,000 birds were captured during the study; of the 67 most common species captured, none was a nearctic migrant: Species diversity: 95.

2339. MacArthur, R. H. 1960. On the relative abundance of species. Amer. Nat. 94: 25-36.

2340. ___________. 1961. Population effects of natural selection. Amer. Nat. 882: 196-199.

2341. ___________. 1969. Patterns of communities in the tropics. Biol. J. Linn. Soc. London 1: 19-30.

2342. ___________. 1971. Patterns of terrestrial bird communities. Pp. 189-221 *in* Avian biology, Vol. 1. (D. S. Farner & J. R. King, Eds.). New York, Academic Press.

2343. ___________. 1972. Geographical ecology: Patterns in the distribution of species. New York, Harper & Row.

-------: -------: -------: -------: Lit.: -------: "ecological counterparts" can be found at the southern end of the breeding range for nearctic migrants (p. 135), temperate breeding birds are forced into tropical communities by nearctic winter, but are unable to compete in primary tropical habitats because such habitats are already "packed with competitors" (pp. 203, 204): 130.

2344. ___________, J. M. Diamond & J. R. Karr. 1972. Density compensation in island faunas. Ecology 53: 330-342.

Puercos Island, Pearl Archipelago: (off Panama): Jan 1971: Deciduous tropical forest: B-R; Obs.: Nonmarine avifauna composed of 24 species including *Actitis macularia*, *Myiarchus crinitus*, *Catharus ustulatus*, *Vermivora peregrina*, *Dendroica castanea*, *Seiurus noveboracensis*, *Piranga rubra*: Zoogeography: 27.

2345. ___________, J. W. MacArthur, D. MacArthur & A. MacArthur. 1973. The effect of island area on population densities. Ecology 54: 657-658.

2346. ___________, ___________ & J. Preer. 1962. On bird species diversity. Amer. Nat. 96: 167-174.

2347. ___________, H. F. Recher & M. L. Cody. 1966. On the relation between habitat selection and species diversity. Amer. Nat. 100: 319-332.

Puerto Rico; Panama: 1963-1966: Scrub; grassland; savannah forest, mangrove: Obs.; HA: 90 species with breeding populations recorded on plots in Panama including - *Myiarchus tuberculifer*, *Troglodytes* (*aedon*) *musculus*, *Vireo* (*olivaceus*) *flavoviridis*, *Sturnella magna*: 29 species with breeding populations recorded on plots in Puerto Rico including *Tyrannus dominicensis*: Different habitats are likely to have similar species in Puerto Rico, unlike Panama and temperate United States: Zoogeography: 5.

2348. McClure, H. E. 1967. The composition of mixed species flocks in lowland and submontane forest of Malaya. Wilson Bull. 79: 131-154.

2349. McDiarmid, R. W., R. E. Ricklefs & M. S. Foster. 1977. Dispersal of Stommadenia donnell-smithii (Apocynaceae) by birds. Biotropica 9: 9-25.

Rio Higueron, Finca Jimenez, Guanacaste Prov., Costa Rica: Observations-18-26 Apr 1971: Tropical dry forest: 22 species were recorded taking fruits of the tree Stommadenia donnell-smithii including - Myiarchus tuberculifer, Catharus ustulatus, Vireo (olivaceus) flavoviridis, Dendroica petechia, D. pennyslvanica, Icterus galbula: Interspecific interactions at the tree were uncommon: Co-evolution; feeding ecology: 49.

2350. McKey, D. 1975. The ecology of coevolved seed dispersal systems. Pp. 159-191 in Coevolution of animals and plants. (L. E. Gilbert & P. H. Raven, Eds.). Austin, Univ. Texas Press.

2351. Martin, P. S. 1955. Zonal distribution of vertebrates in a Mexican cloud forest. Amer. Nat. 849: 347-631.

2352. Miller, A. H. 1958. Reproductive periods in birds near the equator. Caldasia 8: 295-300.

2353. ____________. 1963. Seasonal activity and ecology of the avifauna of an American equatorial cloud forest. Univ. California Publ. Zool. 66: 1-78.

2354. Mlecko, B. E. 1968. Notes on the birds of Costa Rica with special emphasis on flocking. Proc. Iowa Acad. Sci. 75: 457-462.

Volcan Barba, Heredia Prov., Costa Rica (6,300; elev.): Nov. 1967-Jun 1968: Forest, pasture: Obs.: Members of 9 species were common participants in foraging flocks including Mniotilta varia, Vermivora chrysoptera, Dendroica virens, Wilsonia pusilla; flocks began to decrease in number in Apr and only one mixed species flock was seen after Apr; flocks apparently form again with return of migrants and cessation of breeding; maximum flock numbers are from Dec-Mar: 5.

2355. Moore, F. R. 1977. Flocking behavior and territorial competitors. Anim. Behav. 25: 1063-1065.

2356. Morel, G. 1968. [Contribution to the synecology of birds of the Senegal Sahel]. Mem. ORSTOM 29, Paris.

2357. ____________ & F. Bourlière. 1962. [Ecological relations of the sedentary and migratory avifauna in a Sahel savannah of lower senegal]. Terre et Vie 4: 371-393.

-------: Feb 1960-May 1962: Savannah: Obs.; spec.: -------: Migratory birds as a whole, constitute a "floating population" of consumers taking advantage of the seasonal "energy surplus existing in their breeding and wintering areas.": Migrant-resident ecology: 8.

2358. ____________ & F. Roux. 1966. [The Palaearctic migrants of Senegal. I. Non-Passerines]. Terre et Vie 8: 19-72.

2359. Morse, D. H. 1970. Ecological aspects of some mixed-species foraging flocks of birds. Ecol. Monogr. 40: 119-168.

2360. ___________. 1971. The insectivorous bird as an adaptive strategy. Ann. Rev. Ecol. Syst. 2: 177-200.
-------: -------: -------: Lit.: -------: "The problem of utilizing several habitats within a year should result in migrants exhibiting greater plasticity and being less specialized than the residents. They thus should enjoy relatively greater success in competition where utilizing temporary or irregular resources to which residents could not become so highly specialized.": Theory: 100.

2361. ___________. 1980. Foraging and coexistence of spruce-woods warblers. Living Bird. (In Press).

2362. ___________. 1980. Population limitation: breeding or wintering grounds. Pp. 505-516 *in* Migrant birds in the Neotropics: ecology, behavior, distribution and conservation. (A. Keast & E. S. Morton, Ed.). Washington, D. C., Smithsonian Inst. Press.
-------: -------: -------: Lit.: -------: -------: 88.

2363. Morton, E. S. 1972. North American birds in the tropics. Atlantic Nat. 27: 164-168.
Canal zone, Panamá: -------: -------: Obs.: *Tyrannus tyrannus*, *Myiarchus crinitus*, *Nutallornis borealis*, *Empidonax virescens*, *Contopus virens*, *Catharus ustulatus*, *Vireo olivaceus*, *V. flavifrons*, *Mniotilta varia*, *Protonotaria citrea*, *Vermivora chrysoptera*, *V. peregrina*, *Dendroica petechia*, *D. castanea*, *D. pensylvanica*, *Oporornis formosus*, *Seiurus noveboracensis*, *S. motacilla*: Social organization and food use by nearctic migrants in the neotropics: 3.

2364. ___________. 1973. On the evolutionary advantages and disadvantages of fruit eating in tropical birds. Amer. Nat. 107: 8-22.

2365. ___________. 1979. A comparative survey of avian social systems in northern Venezuelan habitats. Pp. 233-259 *in* Vertebrate ecology in the northern Neotropics. (J. F. Eisenberg, Ed.). Washington, D. C., Smithsonian Inst. Press.
Guarico River; Guatopo National Park; Masaguaral, Venezuela: -------: Montane forest; llanos; gallery forest: Obs.: 227 species are listed for montane forest 22 of which are nearctic migrants; 81 species for gallery forest 7 of which are nearctic migrants; 143 species for llanos of which 22 are nearctic migrants: Oscines, because of their more omnivorous habits, appear to be better colonizers than suboscines; type of foods exploited has an important effect on degree of intra and interspecific gregariousness: Social organization; food use: 20.

2366. ___________. 1979. Avian arboreal folivores: Why not? Pp. 123-130 *in* Vertebrate ecology in the northern Neotropics (J. F. Eisenberg, Ed.). Washington, D. C., Smithsonian Inst. Press.

2367. ____________. 1980. Adaptations to seasonal changes by migrant land birds in the Panama Canal Zone. Pp. 437-453. *in* Migrant birds in the Neotropics: ecology, behavior, distribution and conservation. (A. Keast & E. S. Morton, Eds.). Washington, D.C., Smithsonian Inst. Press.

Canal Zone, Panama: 13 Dec 1973 - 12 Jan 1974; 2-16 Mar 1974; 12-25 Mar 1975; Riparian forest; dry forest; wet forest; seral stages: Obs.; FA; spec.: 33 migrants treated: Seasonal changes in foraging, social behavior and habitat use: 15.

2368. Moynihan, M. 1960. Some adaptations which help to promote gregariousness. Proc. Int. Ornith. Cong. 12: 523-541.

2369. ____________. 1962. The organization and probable evolution of some mixed species flocks of neotropical birds. Smithsonian Misc. Coll. 143: 1-140.

2370. ____________. 1963. Interspecific relations between some Andean birds. Ibis 105: 327-339.

2371. ____________. 1968. Social mimicry; Character convergence versus character displacement. Evolution 22: 315-331.

2372. ____________. 1971. Successes and failures of tropical mammals and birds. Amer. Nat. 105: 371-383.

-------: -------: -------: Lit.: -------: "Tropical species may be more often successful in invading the temperate zone than are temperate species in invading the tropics.": Theory: 52.

2373. Munn, C. A. & J. W. Terborgh. 1979. Multispecies territoriality in neotropical foraging flocks. Condor 81: 338-347.

2374. Nisbet, I. C. T. & L. Medway. 1972. Dispersion, population ecology and migration of eastern great reed warblers *Acrocephalus orientalis* wintering in Malaysia. Ibis 114: 451-494.

2375. Odum, E. P. 1945. The concept of the biome as applied to the distribution of North American birds. Wilson Bull. 57: 191-201.

2376. ____________. 1958. Lipid deposition in nocturnal migrant birds. International Ornith. Congr. 12:

2377. Oelke, H. 1968. Density of bird populations in the tropics. Vogelwelt 89: 201-214.

Vic. Kingston, Jamaica: Nov 1966: Thorn scrub; garden; pine plantation: Obs.: *Cathartes aura*, *Buteo jamaicensis*, *Zenaida asiatica*, *Petrochelidon fulva*, *Vireo (griseus) modestus*, *Dendroica petechia*: 38 species considered in 3 different habitats: Community ecology: 24.

2378. Olson, S. L. & K. E. Blum. 1968. Avian dispersal of plants in Panama. Ecology 49: 565-566.

2379. Oniki, Y. 1971. Wandering interspecific flocks in relation to ant-following birds at Belem, Brazil. Condor 73: 372-374.

2380. Orejuela, J. E., R. J. Raitt & H. Alvarez. 1980. Differential use by North American migrants of Colombian forests. Pp. 253-264 in Migrant birds in the Neotropics: ecology, behavior, distribution and conservation. (A. Keast & E. S. Morton, Eds.). Washington, D.C., Smithsonian Inst. Press.

Dept. Valle del Cauca, Colombia: May 1976 - Mar. 1977: tropical dry forest, premontane mesic forest, tropical wet forest: Obs.; spec.; VA; FA; HA; 22 migrant species observed: migrants composed 15 of 78 species in premontane forest, 11 of 80 species in dry forest and 0 of 94 species in wet forest: 19.

2381. Orians, G. H. 1969. The number of bird species in some tropical forests. Ecology 50: 783-801.

2382. Pearson, D. L. 1971. Vertical stratification of birds in a tropical dry forest in Peru. Condor 73: 46-55.

20 km NW Pucallpa, Dept. Loreto, Peru: Jan-Aug 1968: Tropical dry forest: Obs.; FA: 101 species including Pyrocephalus rubinus, Vireo olivaceus: Community ecology: 32.

2384. ____________. 1975. The relation of foliage complexity to ecological diversity of three Amazonian bird communities. Condor 77: 453-466.

2385. ____________. 1977. A pantropical comparison of bird community structure on six lowland forest sites. Condor 79: 232-244.

2386. ____________ & C. P. Ralph. 1978. The diversity and abundance of vertebrates along an altitudinal gradient in Peru. Mem. Mus. Hist. Nat. "Javier Prado" 18.

2387. Post, W. 1978. Social and foraging behavior of Warblers wintering in Puerto Rican coastal scrub. Wilson Bull. 90: 197-214.

El Guayacan Island; La Cueva Island, Puerto Rico: 20 Dec 1975-15 Apr 1976: Xerophytic scrub; mangrove: Obs.: Netting; Mniotilta varia, Protonatia citrea, Parula americana, Dendroica petechia, D. tigrina, D. caerulescens, D. coronata, D. dominica, D. striata, D. discolor, D. palmarum, Seiurus aurocapillus, S. noveboracensis, S. motacilla, Geothlypis trichas, Wilsonia citrina, Setophaga ruticilla: "In the tropics North American migrants, because of their mobility and opportunistic behavior, may often concentrate on irregularly distributed food that is not effectively used by resident populations.": Foraging behavior: 23.

2388. Powell, G. V. N. 1980. Migrant participation in Neotropical mixed species flocks. Pp. 477-483 in Migrant birds in the Neotropics: Ecology, behavior, distribution and conservation. (A. Keast & E. S. Morton, Eds.). Washington, D. C., Smithsonian Inst. Press.

Costa Rica; Colombia; Panama: -------: open and closed canopy forest: Lit.: obs.: 40 species of migrants treated: Flock participation: 21.

2389. Rabenold, K. N. 1979. A reversed latitudinal diversity gradient in avian communities of eastern deciduous forests. Amer. Nat. 114: 275-286.

2390. Rappole, J. H. 1976. A study of evolutionary tactics in populations of solitary avian migrants. Ph.D. Thesis, Minneapolis, Univ. Minnesota.

2391. ___________ & D. W. Warner. 1980. Ecological aspects of migrant bird behavior in Veracruz, Mexico. Pp. 353-393 *in* Migrant birds in the Neotropics: ecology, behavior, distribution and conservation. (A. Keast & E. S. Morton, Eds.). Washington, D. C., Smithsonian Inst. Press.

Playa Escondida, 36 km N Catemaco, Veracruz, Mexico (elev. 100-300m): Nov 1973-Mar 1974; Nov 1974-Mar 1975: Tropical rain forest and seral stages: Obs.; spec.; exp.; B-R; FA: 45 species are discussed including 24 nearctic migrants: Food use; social behavior; territoriality; ortstreue; community ecology: 119.

2392. ___________, ___________ & M. A. Ramos O. 1977. Territoriality and population structure in a small passerine community. Amer. Midl. Nat. 97: 110-119.

2393. Recher, H. F. Population density and seasonal changes of the avifauna in a tropical forest. *in* A tropical rain forest. (H. T. Odum, Ed.). (In press).

2394. Reicholf, J. 1974. [Species richness, frequency and diversity of the raptors from South America]. J. Ornith. 115: 381-397.

2395. Ricklefs, R. E. 1969. The nesting cycle of songbirds in tropical and temperate regions. Living Bird 8: 165-175.

2396. ___________. 1976. Growth rates of birds in the humid new world tropics. Ibis 118: 179-207.

2397. ___________. 1977. A discriminant function analysis of assemblages of fruit-eating birds in Central America. Condor 79: 228-231.

2398. ___________. 1977. Reactions of some Panamanian birds to human intrusion at the nest. Condor 79: 376-379.

2399. ___________ & G. W. Cox. 1977. Morphological similarity and ecological overlap among passerine birds on St. Kitts, British West Indies. Oikos 29: 60-66.

-------: 14-20 Aug 1973: Mature lowland forest and seral stages; savannah, mangrove, grassland, cloud forest: Spec.; obs.; FA: Second growth breeding community consisted of 11 species including *Tyrannus dominicensis*, *Dendroica petechia*: Community ecology: 26.

2400. Roux, F., R. Maheo & A. Tamiser. 1978. Resource exploitation of a tropical winter quarter in the lower Senegal Valley by 3 palearctic and ethiopian species of ducks. Terre et Vie 32: 387-416.

2401. Rubenstein, D. I., R. J. Barnett, R. S. Ridgely & P. H. Klopfer. 1977. Adaptive advantages of mixed-species feeding flocks among seed-eating finches in Costa Rica. Ibis 119: 10-21.

2402. Rylander, M. K. 1978. A comparative study of the forebrain of 4 species of South American birds. Anat. Anz. 144: 393-499.

2403. ____________. 1979. The nucleus mesencephalicus lateralis, pars dorsalis in neotropical passerines. Brain Behav. Evol. 16(4): 315-318.

-------: -------: -------: LA: 8 tropical passerines discussed including *Pyrocephalus rubinus*: "The ratio of the volume of the optic lobe was calculated for each species, and was found to be larger in all 8 species than in a series of non passerine species examined previously by Cobb (1964).": Anatomy-ecology: 5.

2404. Schemske, D. W. & N. Brokaw. 1980. Treefalls and the distribution of understory birds in a tropical forest. Ecology. (In Press).

2405. Schwartz, P. 1980. Some considerations on migratory birds. Pp. 31-34 *in* Migrant birds in the Neotropics: Ecology, behavior, distribution and conservation. (A. Keast & E. S. Morton, Eds.). Washington, D.C., Smithsonian Inst. Press.

-------: -------: -------: Lit.: -------: "Migrant species should not be considered "invaders" to the tropics but as species that have tropical niches the same as resident species." :5.

2406. Short, L. L., Jr. 1961. Interspecies flocking of birds of montane forest in Oaxaca, Mexico. Wilson Bull. 73: 341-347.

2407. Sinclair, A. R. E. 1978. Factors affecting the food supply and breeding season of resident birds and movements of palearctic migrants in a tropical African savannah. Ibis 120: 480-497.

Serengeti Plain, Kenya: 1971-1973: Savannah: Obs.; B-R; insect sampling: -------: Residents breed mostly during the rainy season; migrants begin arriving shortly before rainy season begins but concentrate in areas that have had some rain. "Thus they (migrants) overlap with African species only where there is a superabundance of insects.": Migrant-resident competition; ecology: 48.

2408. Skutch, A. F. 1945. Incubation periods and nesting periods of Central American birds. Auk 62: 8-37.

-------: -------: -------: Obs.: Incubation and/or nesting period is given for 137 species including *Coragyps atratus*, *Myiarchus tuberculifer*, *Stelgidopteryx ruficollis*, *Troglodytes aedon*, *Sialia sialis*, *Vireo (olivaceus) virescens*: -------: 16.

2409. ____________. 1950. The nesting season of Central American birds in relation to climate and food supply. Ibis 92: 185-222.

-------: 1928-1948: -------: Obs.: -------: "for Central America as a whole, the peak of the nesting season falls between the vernal equinox and the summer solstice..."; food availability seems to be the most important factor affecting timing of reproduction; nearctic migrants may have some effect on timing due to their effect on food availability: 13.

2410. ___________. 1976. Parent birds and their young. Austin, Texas, Univ. Texas Press.

2411. ___________. 1980. Arils as food of Tropical American birds. Condor 82: 31-42.
-------: -------: -------: Obs.: 95 species of birds feed on oil-rich arillate seeds and berries including *Elanoides forficatus*, *Tyrannus tyrannus*, *Myiodynastes luteiventris*, *Myiarchus tyrannulus*, *M. tuberculifer*, *Empidonax flaviventris*, *Dumetella carolinensis*, *Catharus ustulatus*, *Vireo flavifrons*, *V. olivaceus*, *V. philadelphicus*, *Vermivora peregrina*, *Dendroica pensylvanica*, *Oporornis philadelphia*, *Icterus galbula*, *Piranga rubra*, *P. olivacea*, *Pheucticus ludovicianus*: Some arils are important foods for transients; seeds are most plentiful from Mar-Jun: Foods; feeding ecology: 22.

2412. Smith, N. G. 1975. Spshing noise biological significance of its attraction and nonattraction by birds. Proc. Natl. Acad. Sci. Washington 72: 1411-1414.

2413. Smythe, N. 1970. Relationships between fruiting seasons and seed dispersal methods in a Neotropical forest. Amer. Nat. 104: 25-35.

2414. Snow, D. W. 1966. A possible selective factor in the evolution of fruiting seasons in tropical forest. Oikos 15: 274-281.

2415. ___________. 1968. Fruiting seasons and bird breeding season in the New World Tropics. J. Appl. Ecol. 5: 5P-6P.
-------: -------: -------: Lit.: "As far as they (breeding seasons) can be related to environmental changes, they appear to be adjusted to coincide with the seasons of abundance of the birds' preferred foods...": 4.

2416. ___________. 1968. Fruiting seasons and bird breeding seasons in the New World. Animals 11: 305-309.

2417. ___________. 1971. Evolutionary aspects of fruit-eating by birds. Ibis 113: 194-202.

2418. ___________ & A. Lill. 1974. Longevity records for some neotropical land birds. Condor 76: 262-267.

2419. ___________ & B. K. Snow. 1964. Breeding seasons and annual cycles of Trinidad land birds. Zoologica 49: 1-30.
-------: 1957-1962: Rainforest; seasonal forest; monsoon forest: Obs.: Breeding and/or molt records on 122 species including *Progne (subis) chalybea*, *Stelgidopteryx ruficollis*, *Troglodytes (aedon) musculus*, *Vireo olivaceus*, *Piranga flava*: -------: 54.

2420. Stiles, E. W. 1978. Avian communities in temperate and tropical alder forests. Condor 80: 276-284.

2421. Stiles, F. G. 1978. Ecological and evolutionary implications of bird pollination. Amer. Zool. 18: 715-727.

2422. ___________. 1980. Evolutionary implications of habitat relations between permanent resident and winter resident land birds in Costa Rica. Pp. 421-435 in Migrant birds in the Neotropics: ecology, behavior, distribution and conservation. (A. Keast & E. S. Morton, Eds.). Washington, D. C., Smithsonian Inst. Press.

-------: -------: -------: Obs.: lit.; spec.; B-R: 216 migrant species treated of 815 total species; status and affinities for 106 migrants are given; habitat preferences examined: 13.

2423. Terborgh, J. W. 1968. Bird species diversity on an elevational gradient in neotropical forest. Amer. Phil. Soc. Yearbook 1967: 298-302.

2424. ___________. 1971. Distribution on environmental gradients: theory and a preliminary interpretation of distributional patterns in avifauna of the Cordillera Vilcabamba, Peru. Ecology 52: 23-40.

2425. ___________ & J. Faaborgh. Saturation and structure in Western Indian bird communities. Amer. Nat. (In Press).

2426. ___________ & J. S. Weske. 1969. Colonization of secondary habitats by Peruvian birds. Ecology 50: 765-782.

12°, 39' S, 73° 44' W; Apurimac Valley, Dept. Ayacucho, Peru (1,950' elev.): 2 Jul-2 Sep 1965; Jun, Aug, 1966, 1967, 1968: Tall rain forest and seral states; coffee and cacao plantations; matorral (riparian): Obs.; HA; VA: 221 species recorded including Coragyps atratus, Cathartes aura, Elanoides forficatus, Myiarchus tuberculifer, Vireo olivaceus: The land birds of the Apurimac Valley (including those inhabiting second growth) appear to emanate from two sources - rain forest and matorral: Community ecology: 18.

2427. Thiollay, J. M. 1978. Comparative ecological structures of avian populations of temperate mixed forests. Gerfaut 68: 347-373.

2428. Thompson, J. N. & M. F. Willson. 1979. Evolution of temperate fruit/bird interactions: Phenological strategies. Evolution 33: 973-982.

2429. Tovar, S. H. 1971. [Ecological study of the Laguna de Medio Mundo (central coast of Peru) with special reference to vertebrates]. Ph.D. Thesis, San Marco, Lima.

2430. Tramer, E. J. 1974. On latitudinal gradients in avian diversity. Condor 76: 123-130.

2431. ___________ & T. R. Kemp. 1980. Foraging ecology of migrants and resident warblers and vireos in the highlands of Costa Rica. Pp. 285-296 in Migrant birds in the Neotropics: Ecology, behavior, distribution and conservation. (A. Keast & E. S. Morton, Eds.). Washington, D.C., Smithsonian Inst. Press.

Monteverde, Costa Rica (1300-1550m): 15 Dec 1976 - 6 Mar 1977: premontane forest and seral stages: Obs.; FA; mist-netting: 29 species of migrants seen: status; habitat use; foraging behavior; intra- and interspecific interactions: 12.

2432. Van der Pijl, L. 1969. Evolutionary action of tropical animals on the reproduction of plants. J. Ecol. 57: 6P.

2433. Verner, J. 1977. On the adaptive significance of territoriality. Amer. Nat. 111: 769-775.

2434. Vuilleumier, F. 1967. Mixed species flocks in Patagonian Forests, with remarks on interspecific flock formation. Condor 69: 400-404.

2435. ___________. 1972. Bird species diversity in Patagonia (Temperate South America). Amer. Nat. 106: 266-271.
-------: Feb-Mar 1965: Mesophytic forest; rain forest; montane forest; steppe: Obs.: 42 species recorded including *Circus* (*cyaneus*) *cinerus*, *Falco* *sparverius*, *Asio* *flammeus*, *Troglodytes* *aedon*: Community ecology: 15.

2436. Wagner, H. O. 1959. [Composition of bird flocks in Mexico: especially the behavior of northern migrants]. Z. Tierpsychol. 15: 178-190.
-------: 1950: -------: Obs.: *Polioptila* *caerulea*, *Vireo* *gilvus*, *Mniotilta* *varia*, *Dendroica* *virens*, *D*. *occidentalis*, *D*. *townsendi*, *Wilsonia* *pusilla*, *Piranga* *rubra*: Components of interspecific flocks in different habitats; factors favoring flock formation and joining of flocks by migrants are discussed: 18.

2437. Waide, R. B. 1980. Resource partitioning between migrant and resident birds: the use of irregular resources. Pp. 337-352 *in* Migrant birds in the Neotropics: ecology, behavior, distribution and conservation. (A. Keast & E. S. Morton, Eds.). Washington, D. C., Smithsonian Inst. Press.
Becan, Campeche, Mexico: Feb. - Jun 1973; Jun - Dec 1974; May - Aug, Dec 1975; Jan 1976: Subevergreen forest and seral stages: Obs.; B-R: 25 migrant species treated: Habitat use: 26.

2438. ___________. 1981. Interactions between resident and migrant birds in Campeche, Mexico. (In Press).
-------: 1974, 1975: Subevergreen forest and clearings: Obs.; FA: *Tyrannus* *tyrannus*, *Myiarchus* *crinitus*, *Empidonax* *minimus*, *Contopus* *virens*, *Dumetella* *carolinensis*, *Hylocichla* *mustelina*, *Polioptila* *caerulea*, *Vireo* *griseus*, *V*. *flavifrons*, *Mniotilta* *varia*, *Parula* *americana*, *D*. *magnolia*, *Dendroica* *virens*, *Seiurus* *aurocapillus*, *Oporornis* *formosus*, *Wilsonia* *citrina*, *Setophaga* *ruticilla*, *Piranga* *rubra*: Competition: 18.

2439. Ward, P. 1969. Seasonal and diurnal changes in the fat content of an equatorial bird. Physiol. Zool. 42: 85-95.

2440. ___________ & A. Zahavi. 1973. The importance of certain assemblages of birds as "information centres" for food finding. Ibis 115: 517-534.

2441. White, S. C. 1974. Ecological aspects of growth and nutrition in tropical fruit-eating birds. Ph.D. Thesis, Univ. Pennsylvania.

2442. Wiens, J. A. 1977. On competition and variable environments. Amer. Sci. 65: 590-597.

2443. ___________ & J. T. Rottenberry. 1979. Diet-niche relationships among North American grassland and shrubsteppe birds. Oecologia 42: 253-292.

2444. Wiley, R. H. 1971. Cooperative roles of mixed species flocks of antwrens (Formicaiidae). Auk 88: 881-892.

2445. Willcox, D. R. C. & B. Willcox. 1978. Observations of birds in Tripolitania, Libya. Ibis 120: 329-332.

-------: -------: -------: Obs.: Evidence of territoriality and pairing in wintering palearctic migrants: 12.

2446. Willis, E. O. 1966. Competitive exclusion and birds at fruiting trees in western Colombia. Auk 83: 479-480.

Cali-Buenaventura Rod. (3° 32' N, 76° 43' W), Valle, Colombia (4,500' elev.): 20-22 Mar 1952: Fruiting Conostegia trees in Montane forest: Obs.: 28 species observed including Vermivora peregrina: Food exploitation patterns: 3.

2447. ___________. 1966. The role of migrant birds at swarms of army ants. Living Bird 5: 187-231.

British Honduras; Costa Rica; Panama; Colombia; Trinidad; Guyana: 1957-1965: Lowland tropical forest: Obs.: Myiarchus crinitus, Contopus virens, Empidonax traillii, E. virescens, Hylocichla mustelina, Catharus ustulatus, C. minimus, C. fuscescens, Vireo flavifrons, Dendroica pensylvanica, D. castanea, Seiurus aurocapillus, S. noveboracensis, S. motacilla, Oporornis formosus, Wilsonia citrina, W. canadensis, Piranga rubra, P. olivacea: "The observations at swarms of ants ... suggest that the subordinate migrants use swarms only when the latter produce food surpluses which the dominant resident species cannot exploit." (p. 223): Ecology; interspecific interaction: 30.

2448. ___________. 1973. Local distribution of mixed flocks in Puerto Rico. Wilson Bull. 85: 75-77.

-------: 17-28 Jan 1972: Wet forest; elfin forest; palm forest; scrub: Obs.: 12 species recorded including Mniotilta varia, Dendroica caerulescens, Parula americana, Setophaga ruticilla: Little evidence of flocking except in areas likely to have avian predators: Social organization: 11.

2449. ___________. 1974. Populations and local extinctions of birds on Barro Colorado Island, Panama. Ecol. Monogr. 44: 153-169.

2450. ___________. 1976. Effects of a cold wave on an Amazonian avifauna in the upper Paraguay drainage, Western Mato Grosso, and suggestions on Oscine-Suboscine relationships. Acta Amazonica (Brazil) 6: 379-394.

2451. ___________. 1980. Ecological roles of migratory and resident birds on Barro Colorado Island, Panama. Pp. 205-225 in Migrant birds in the Neotropics: ecology, behavior, distribution and conservation. (A. Keast & E. S. Morton, Eds.). Washington, D. C., Smithsonian Inst. Press.

-------: 1960-1971: Lowland tropical forest and seral stages; marsh: Obs.; lit.: 60 migrant species considered: seasonal occurrence; habitat use; foraging height; prey items; relation to residents: 40.

2452. ___________ & Y. Oniki. 1978. Birds and army ants. Ann. Rev. Ecol. Syst. 9: 243-263.

2453. Willson, M. F. 1973. Tropical plant production and animal species diversity. Trop. Ecol. 11: 62-65.

2454. ___________, S. H. Anderson & B. G. Murray, Jr. 1973. Tropical and temperate bird species diversity: within-habitat and between-habitat comparisons. Carib. J. Sci. 13: 82-90.

2455. ___________ & D. J. Moriarty. 1976. Bird species diversity in forest understory of mist net samples. Oecologia 25: 373-379.

2456. ___________, E. A. Porter & R. Condit. 1980. On microhabitat use of avian frugivores in Illinois and Panama. Carib. J. Sci.

2457. ___________ & R. A. Van Neumann. 1972. Why are neotropical birds more colorful than North American birds? Avic. Mag. 78: 141-147.

2458a. Zahavi, A. 1971. The social behavior of the white wagtail Motacilla alba alba wintering in Israel. Ibis 113: 203-211.

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2458b. Abbott, D. J., III & D. W. Finch. 1978. First Variegated Flycatcher (Empidonomus varius) record for the United States. Amer. Birds 32: 161-163.

2459. Allen, J. A. 1892. Chapman on the origin of the avifauna of the Bahamas. Auk 9: 179-180.

2460. ____________. 1893. The geographical origin and distribution of North American birds, considered in relation to faunal areas of North America. Auk 10: 97-150.

2461. Amadon, D. 1953. Migratory birds of relict distribution: some inferences. Auk 70: 461-469.

2462. Andrle, R. F. 1964. A biogeographical investigation of the Sierra de Tuxtla in Veracruz, Mexico. Ph.D. Thesis. Louisiana St. Univ.

2463. Baker, H. G. 1970. Evolution in the tropics. Biotropica 2: 101-111.

-------: -------: -------: Lit.: -------: Baker examines 7 major hypothesis concerning evolution in the tropics - mostly on the basis of botanical evidence. 1) available time, 2) spatial heterogeneity, 3) competition, 4) predation, 5) climatic stability, 6) productivity, 7) speciation/extinction ratio: 57.

2464. Baker, R. R. 1978. The evolutionary ecology of animal migration. New York, Holmes & Meier.

2465. Bartinicki. 1979. Inca Dove in Comanche County, Oklahoma. Bull. Oklahoma Ornith. Soc. 12: 31-32.

2466. Bohlen, H. D. 1976. A Great-tailed Grackle from Illinois. Amer. Birds 30: 917.

2467. Bond, J. 1934. The distribution and origin of the West Indian avifauna. Proc. Amer. Phil. Soc. 73: 341-349.

2468. ____________. 1948. Origin of the bird fauna of the West Indies. Wilson Bull. 60: 207-229.

-------: -------: -------: Lit.: "The West Indies comprise a Subregion of the North American Region and may be divided into two provinces - the Greater Antillean Province (including the Bahama Islands) and the Lesser Antillean Province. The West Indies gives us a rather clear picture of a tropical North American avifauna, which has been largely eradicated in Central America since the formation of the Central American isthmus, which permitted an influx of a great many more or less sedentary South American forms..." (p. 227): 27.

2469. ___________. 1963. Derivation of the Antillean avifauna. Proc. Acad. Nat. Sci. Philadelphia 115: 79-98.

-------: -------: -------: Lit.: Bond discusses the relationships and derivation for all the major groups of birds inhabiting the West Indies, he concludes that the majority are tropical North American in origin: 29.

2470. ___________. 1966. Affinities of the Antillean avifauna. Carib. J. Sci. 6(3-4): 175.

-------: -------: -------: Lit.: -------: Antillean avifauna is derived predominently from that of tropical North America: 6.

2471. ___________. 1979. Derivations of Lesser Antillean birds. Proc. Acad. Nat. Sci. Philadelphia 131: 89-103.

2472. Brown, K. S., J. R. G. Turner & P. M. Sheppard. 1974. Quaternary forest refugia in tropical America: Evidence from race information in Heliconius butterflies. Nature. (In Press).

2473. Carpenter, G. H. 1894. Nearctic or Sonoran. Nat. Sci. 5: 53-57.

2474. Chapman, F. M. 1891. The origin of the avifauna of the Bahamas. Amer. Nat. 25: 528-539.

-------: -------: -------: Lit.: 156 species recorded, 30 "North American Migrants": Bahamas avifauna is West Indian with closest affinities to Cuba: Distribution: 0.

2475. Cook, R. E. 1974. Origin of the highland avifauna of southern Venezuela. Syst. Zool. 23: 257-264.

2476. Cracraft, J. 1973. Continental drift, paleoclimatology and the evolution and biogeography of birds. J. Zool. Lond. 169: 455-545.

-------: -------: -------: Spec.; lit.: Comments on the origins of nearctic avian families: Distribution; evolution: 333.

2477. ___________. 1975. Historical biogeography and earth history: Perspectives for a future synthesis. Ann. Missouri Bot. Garden 62: 227-250.

2478. ___________. 1975. Mesozoic dispersal of terrestrial faunas around the southern end of the world. Mem. Mus. Nat. Hist. (Paris) Ser. A. Zool. 88: 29-54.

2479. Croizat, L. 1958. Panbiogeography. Vol. 1, IIa, IIb. Caracas.

2480. Dajoz, R. 1968. Ecology and biogeography of South America: adaptations of birds to high altitude. Sci. Progr. Nat. (Paris) 3396: 139-142.

-------: -------: -------: Lit.: Oxyura jamaicensis: Equatorial Andes serve as a bridge for temperate zone migrants between North and South American temperate zones; Andes also important in speciation; adaptations of birds to high elevations are discussed: 1.

2481. Darlington, P. J., Jr. 1938. The origin of the fauna of the Greater Antilles, with discussion of dispersal of animals over water and through the air. Quart. Rev. Biol. 13: 274-300.

2482. ___________. 1957. Zoogeography: the geographic distribution of animals. New York, Wiley.

2483. ___________. 1965. Biogeography of the southern end of the world. Cambridge, Harvard Univ. Press.

2484. Darwin, C. R. 1839-1843. Zoology of H. M. S. Beagle. London.

2485. ___________. 1963. Darwin's ornithological notes. (Edited with introduction, notes, and appendix by Nora Barlow). Bull British Mus. (Nat. Hist.), Hist. Ser. 2: 203-278.

2486. Davis, M. B. 1969. Palynology and environmental history during the Quaternary Period. Amer. Sci. 57(3): 317-332.

2487. Delap, E. 1979. Groove-billed Ani in Washington County, Oklahoma. Bull. Oklahoma Ornith. Soc. 12: 32-33.

2488. Dice, L. R. 1939. The Sonoran biotic province. Ecology 20: 118-129.

2489. ___________. 1943. The biotic provinces of North America. Ann Arbor, Univ. Mich. Press.

2490. Dick, J. H. 1974. A new species for South Carolina. Fork-tailed Flycatcher photographed on Bull's Island. Chat 38: 73-74.

2491. Dobzhansky, T. 1950. Evolution in the tropics. Amer. Sci. 38: 209-221.
-------: -------: -------: Lit.: Intense competition for resources is a major cause of high species diversity in the tropics: 17.

2492. Dorst, J. 1955. [Some biogeographical aspects of Peru]. C. R. Somm. Soc. Biogeog. 283: 122-128.

2493. ___________. 1967. [Zoogeographic and ecological considerations on the high Andes]. Pp. 471-504 *in* Biologie de l'Amerique Australe. Vol. 3. (C. D. Deboutteville & E. Rapoport, Eds.). Paris, Centre National de la Recherche Scientifique.
-------: -------: -------: Lit.: Dorst postulates 4 categories of species inhabiting the Andes 1) ubiquitous, source unknown (*Phalacrocorax olivaceus*, *Nycticorax nycticorax*, *Cathartes aura*, *Troglodytes aedon*); 2) Patagonian; 3) Boreal (*Fulica*, *Gallinula*, *Oxyura*, *Recurvirostra*, *Cistothorus*, *Spinus*, *Anas discors*, *Tringa flavipes*, *T. melanoleuca*, *Calidris melanotos*, *C. bairdii*; 4) Andean; Dorst states that the Andean habitats serve as a corridor between North and South American temperate regions: Climate; geography; geology; avian evolution; ecological adaptations: 19.

2494. ___________. 1974. Historical factors influencing the richness and diversity of the South American avifauna. Proc. Int. Ornith. Congr. 16: 17-35.
-------: -------: -------: Lit.: Main causal factors of South American avifaunal diversity are a) extent of stable complex rain forest communities, b) Pleistocene climatic fluctuations created multiple refugia for speciation, c) Andes uplift created ecological diversity: 90.

2495. Durham, J. W., A. R. V. Arellano & J. H. Peck, Jr. 1952. No Cenozoic Tehuantepec seaways. Bull Geol. Soc. 63: 1245.

2496. Faaborg, J. 1980. Further observations of ecological release in Mona Island birds. Auk 97: 624-627.
-------; Guanica Forest, southwest Puerto Rico: 1972; Feb, Jun 1973; Feb 1974; Jan, Dec 1975; Jan 1976; Jan 1978: "sclerophyllous vegetation": Obs.; B-R: *Coccyzus minor*, *Tyrannus dominicensis*, *Vireo* (*griseus*) *latimeri*, *V. altiloquus*: -------: 16.

2497. Federov, A. A. 1966. The structure of the tropical rain forest and speciation in the humid tropics. J. Ecol. 54: 1-11.

2498. Feduccia, A. 1977. A model for the evolution of perching birds. Syst. Zool. 26: 19-31.

2499. Fosberg, F. R. 1969. The problem of isolation in the lowland tropical rain forest. Abstracts of Papers, XI Int. Bot. Congr., Seattle. p. 62.
-------: -------: -------: Lit.: -------: Species richness of tropical rain forest is attributed to 1) abundance of essential resources, 2) long geological time for evolution to take place, 3) high habitat diversity, 4) broad range, sparse occurrence, limited dispersal capacity results in spatial isolation.

2500. Freese, F. 1979. Fork-tailed Flycatcher in Columbia County (Wisconsin). Passenger Pigeon 41: 41-42.

2501. Fretwell, S. D. 1980. Evolution of migration in relation to factors regulating bird numbers. Pp. 517-527. *in* Migrant birds in the Neotropics: ecology, behavior, distribution and conservation. (A. Keast & E. S. Morton, Eds.). Washington, D.C., Smithsonian Inst. Press.

2502. Gehlbach, F. R., D. O. Dillon, H. L. Harell, S. E. Kennedy & K. R. Wilson. 1976. Avifauna of the Rio Corona, Tamaulipas, Mexico: Northeastern limit of the tropics. Auk 93: 53-65.

2503. Gery, J. 1968. The fresh-water fishes of South America. Pp. 828-848 *in* Biogeography and ecology in South America. (E. J. Fittkau *et al.* Eds.). The Hague, W. Junk.
-------: -------: -------: Lit.: Discussion of fish distribution in the various regions of South America (has direct bearing on the theories of Peistocene speciation in the Amazon basin proposed by Haffer, 1967): 31.

2504. Goldman, E. A. & R. T. Moore. 1946. The biotic provinces of Mexico. J. Mamm. 26: 347-360.

2505. Grant, P. R. 1965. The adaptive significance of some size trends in island birds. Evolution 19: 355-367.

2506. Greenberg, R. 1980. Demographic aspects of long-distance migration. Pp. 493-504. in Migrant birds in the Neotropics: ecology, behavior, distribution and conservation. (A. Keast & E. S. Morton, Eds.). Washington, D.C., Smithsonian Inst. Press.
-------: -------: -------: Lit.: -------: Theory-evolution of migration: 62.

2507. Griscom, L. 1942. Origin and relationships of the faunal areas of Central America. Proc. VII Amer. Sci. Congr. 3 (Biol. Ser.): 425-430.

2508. ____________. 1950. Distribution and origin of the birds of Mexico. Bull. Mus. Comp. Zool. 103: 341-382.

2509. Haffer, J. 1967. On the dispersal of highland birds in tropical South and Central America. Hornero 10: 436-438.

2510. ____________. 1967. Interspecific competition as a possible factor in limting the range of some trans-Andean forest birds. Hornero 10: 438-440.

2511. ____________. 1967. Some allopatric species pairs of birds in northwestern Colombia. Auk 84: 343-365.

2512. ____________. 1967. Speciation in Colombian forest birds west of the Andes. Amer. Mus. Novit. 2294.

2513. ____________. 1967. Zoogeographical notes on the "nonforest" lowland bird faunas of northwestern South America. Hornero 10: 315-333.

2514. ____________. 1969. Speciation in Amazonian forest birds. Science 100: 131-136.

2515. ____________. 1970. [Origin and dispersal of North Andean Highland birds]. Zool. Jb. Syst. Bd. 97: 301-337.

2516. ____________. 1970. Geologic-climatic history and zoogeographic significance of the Uraba region in northwestern Colombia. Caldasia 10: 603-636.

2517. ____________. 1971. Origin of species in wood birds of Amazonia. UMSCH Wiss Tec 71: 135-136.

2518. ___________. 1974. Avian speciation in tropical South America. Nuttall Ornith. Club 14.

-------: 1957-1967: Mostly forest of various types: Obs.: spec.; lit.: No migrant species are mentioned: The geological and climatological information on South America is pertinent to migrants that winter in this area of the tropics. Haffer's ideas on speciation during Peistocene climatic changes are also pertinent: 826.

2519. ___________. 1974. [Pleistocene differentiation of Amazonian avifauna]. Bonn. Zool. Beitr. 25: 87-117.

2520. ___________. 1974. Pleistocene evolution of the Amazonian bird fauna Regnum Vegetabile (International Assoc. Plant Taxonomy).

2521. ___________. 1978. Distribution of Amazon forest birds. Bonn. Zool. Beitr. 29: 38-78.

2522. Heilprin, A. 1883. On the value of the "Nearctic" as one of the primary zoological regions. Replies to criticisms by Mr. Alfred Russell Wallace and Prof. Theodore Gill. Proc. Acad. Nat. Sci. Philadelphia 1883: 266-275.

2523. Howell, A. B. 1923. The influences of the southwestern deserts upon the avifauna of California. Auk 40: 584-592.

2524. Howell, T. R. 1969. Avian distribution in Central America. Auk 86: 293-326.

-------: -------: -------: Lit.: -------: Howell defines Central America as "... the area from the United States-Mexico border and the lower Rio Grande valley south through Panama and including a small part of Colombia southwest of the Gulf of Uraba."; Northern or southern geographical affinity (derivation?) of families is inferred from graphs of species numbers plotted for 9 regions of Central America: Zoogeography: 44.

2525. Hubbard, J. P. 1973. Avian evolution in the aridlands of North America. Living Bird 12: 155-196.

-------: -------: Grassland; scrub; savannah: Obs.; spec.; lit.: 25 species of nearctic migrants are considered; a speciation model is developed based on Pleistocene climatic changes: Evolution: 34.

2526. Ihering, C. von. 1927. The geographic origin of the birds of South America. Ibis, ser. 13: 427-442.

2527. Janzen, D. H. 1967. Why mountain passes are higher in the tropics. Amer. Nat. 101: 233-249.

2528. Johnsgard, P. A. 1978. The ornithology of the Great Plains states. Prairie Nat. 10: 97-112.

2529. Johnson, J. A. & F. R. Ziegler. 1978. A Violet-crowned Hummingbird in California. Western Birds 9: 91-92.

2530. Keast, A. 1972. Faunal elements and evolutionary patterns: Some comparisons between the continental avifaunas of Africa, South America and Australia. Pro. Int. Ornith. Congr. 15: 594-622.

2531. ___________. 1972. Ecological opportunities and dominant families, as illustrated by the Neotropical Tyranniadae (Aves). Evol. Biol. 5: 229-277.

-------: -------: -------: Lit.: Invasion of South American avifauna by North American members of such groups as Parulidae was prevented by pre-empting of available niches by highly diversified indigenous groups like Tyrannidae: 56.

2532. ___________. 1980. Synthesis: ecological basis and evolution of the nearctic-neotrpical bird migration system. Pp. 559-576. in Migrant birds in the Neotropics: ecology, behavior, distribution and conservation. (A. Keast & E. S. Morton, Eds.). Washington, D.C., Smithsonian Inst. Press.

2533. Koepcke, H. W. 1961. [Ecological studies of the west Peruvian Andes]. Bonn. Geogr. Abhandl. Heft 29.

2534. Koepcke, M. 1963. [Adaptation and geographic isolation in birds of the Peruvian coastal hills]. Proc. Int. Ornith. Congr. 13: 1195-1213.

Coastal Peru: -------: lomas - areas of fog vegetation along the Peruvian desert coast: Obs.; spec.: 67 species recorded including Numenius phaeopus, Calidris alba, Cathartes aura, Pandion haliaetus, Falco peregrinus, F. sparverius, Athene cunicularia, Chaetura pelagica, Pyrocephalus rubinus, Troglodytes aedon: Effects of geographic isolation on different vertebrate groups: 5.

2535. Lack, D. 1944. Ecological aspects of species formation in passerine birds. Ibis 86: 260-286.

2536. ___________. 1970. The numbers of bird species on islands. Bird Study 16: 193-209.

2537. ___________. 1976. Island biology illustrated by the land birds of Jamaica. Berkeley, Univ. California Press.

Eastern Jamaica: mid-Oct 1970-mid July 1971: 13 major terrestrial habitat types investigated: Spec.; obs.; lit.: 21 species of nearctic landbird migrants, mostly parulids, winter regularly on Jamaica, composing 2/5 of the entire landbird avifauna during this season; no ecological counterparts for these species were evident among residents during summer or winter seasons; Lack suggests that intense competition causes exclusion of nearctic migrants that occur only as transients or rare visitors; foraging behavior and other ecological adaptations of nearctic migrants are at least partially a result of natural selection taking place on the wintering ground; breeding biology and range are discussed for summer resident populations of terrestrial nearctic migrants - Zenaida macroura, Z. asiatica, Coccyzus americanus, Chordeiles minor, Progne (subis) domincensis, Petrochelidon fulva, Ammodramus savannarum, Dendroica petechia: Ecology; life history; zoogeography: 241.

2538. Levins, R. 1968. Evolution in changing environments. Princeton, N. J., Princeton Univ. Press.

2539. ____________ & H. Heatwole. 1973. Biogeography of the Puerto Rican Bank: introduction of species onto Palominitos Island. Ecology 54: 1056-1064.

2540. Lönnberg, E. 1927. Some speculations on the origin of the North American ornithic fauna. Kungl. Svenska Vetenskapsakad. Handl. Ser. 3, 4, (6): 1-24.

2541. MacArthur, R. H. 1959. On the breeding distribution pattern of North American migrant birds. Auk 76: 318-325.
-------: -------: -------: Lit.: -------: "... density of breeding individuals of species migrating to the neotropics seems to correlate with the contrast between winter and summer food supply in the given habitat."; "In the undisturbed northern habitats considered, the average migrant to the neotropics is commoner than the average (resident) species ...": Zoogeography: 41.

2542. ____________ & E. O. Wilson. 1963. An equilibrium theory of insular zoogeography. Evolution 17: 373-387.

2543. ____________ & ____________. 1967. The theory of island biogeography. Princeton, N. J., Princeton Univ. Press.

2544. MacGinitie, H. D. 1958. Climate since the late Cretaceous. Pp. 61-79 *in* Zoogeography 51. (C. L. Hubbs, Ed.). A.A.A.S. Publ.

2545. MacLean, G. L. 1974. Arid zone ornithology in Africa and S. America. Proc. Int. Ornith. Congr. 16: 468-480.

2546. Mayr, E. 1946. History of the North American bird fauna. Wilson Bull. 58: 2-41.
-------: -------: -------: Lit.: -------: Speculation on origin or "center of evolution" for avifauna based mostly on current species distribution: 44.

2547. ____________. 1963. Animal species and evolution. Cambridge, Mass., Belknap.
-------: -------: -------: Lit.: -------: Numerous comments related to systematics and evolution in nearctic migrants including members of the following genera - *Accipiter*, *Anas*, *Catharus*, *Dendroica*, *Hylocichla*, *Larus*, *Melospiza*, *Myiarchus*, *Passerculus*, *Passerina*, *Phalacrocorax*, *Pipilo*, *Regulus*, *Sturnella*, *Troglodytes*, *Vermivora*, *Vireo*, *Zonotrichia*: Over 1800 references some of which pertain to avian migrants.

2548. ____________. 1964. Inferences concerning the Tertiary American bird faunas. Proc. Natl. Acad. Sci. 51: 280-288.

2549. ___________. 1964. Neotropical Region. Pp. 516-518 in New dictionary of birds. (A. L. Thomson, Ed.). New York, McGraw-Hill.

-------: -------: -------: Lit.: -------: Neotropics defined as the land area "... from the northern edge of the tropical rainforest in Mexico, about 20° N Lat..., south to Cape Horn, in about 57° S lat."; considers Central America as "... tropical North America.": Definitions and broad categorization of avifauna: 5.

2550. ___________. 1965. Avifauna: turnover in islands. Science 150: 1587-1588.

2551. ___________. 1969. Bird speciation in the tropics. Biol. J. Linnean Soc. London 1: 1-17.

-------: -------: -------: Lit.: -------: "The higher number of species in the tropics permits two interpretations, an ecological and a genetic one. According to the genetic one, certain processes are active in the tropics (e.g. increased mutation rates or a speeding up of the number of generations) which accelerate the process of the multiplication of species. According to the ecological one, the tropical environment favors the accumulation and continued coexistence of an exceptionally high number of species, produced by the orthodox speciation process. The analysis of bird speciation favors a largely ecological interpretation.": 16.

2552. ___________ & D. Amadon. 1951. A classification of recent birds. Amer. Mus. Novit. 1496.

2553. ___________ & W. H. Phelps, Jr. 1954. Origin of the Bird Fauna of Pantepui. Proc. Int. Ornith. Congr. 11: 399-400.

2554. ___________ & ___________. 1967. The origin of the bird fauna of the south Venezuelan highlands. Bull. Amer. Mus. Nat. Hist. 136: 269-328.

2555. ___________ & L. L. Short, Jr. 1970. Species taxa of North American birds. Publ. Nuttall Ornith. Club 9.

-------: -------: -------: Lit.: All North American species are treated (North of Mexico): The authors recognize 607 "biological species" and 517 "zoogeographical species" (includes super-species complexes): 52 nearctic migrants are recognized as members of polytypic species or superspecies complexes with Central or South American resident breeding forms: 513.

2556. Mengel, R. M. 1970. The North American central plains as an isolating agent in bird speciation. Pp. 279-340 in Pleistocene recent environments of the central Great Plains. (W. Dort, Jr. & J. K. Jones, Eds.). Dept. Geology, Univ. Kansas, Spec. Publ. 3.

-------: -------: -------: Lit.: -------: Discussion of the origins and speciation of avian species in the central plains and surrounding life zones; many species (long distance migrants especially) show affinities to neotropical forms. These species appear to have undergone a much greater degree of evolutionary radiation than those of holarctic origin: 144.

2557. Moore, T. S. 1974. First record of the Smooth-billed Ani in Georgia. Oriole 40: 1-2.

2558. Moreau, R. E. 1963. The distribution of tropical African birds as an indicator of past climatic changes. Pp. 28-42 *in* African ecology and human evolution. (F. C. Howell & F. Bourliere, Eds.). Chicago, Aldine Publ. Co.

2559. ___________. 1969. Climatic changes and the distribution of forest vertebrates in West Africa. J. Zool. (London) 158: 39-61.

2560. ___________. 1966. The mutability of the African avifaunal scene. Ostrich, Suppl. 6: 453-459.

2561. Morton, E. S. 1980. The importance of migrant birds to the advancement of evolutionary theory. Pp. 555-557. *in* Migrant birds in the Neotropics: ecology, behavior, distribution and conservation. (A. Keast & E. S. Morton, Eds.). Washington, D.C., Smithsonian Inst. Press.

2562. Moynihan, M. 1979. Geographic variation in social behavior and in adaptations to competition among Andean birds. Publ. Nuttall Ornith. Club 18: 162 pp.

The Andean Highlands (elev. 2400-3700 m) from northern Bolivia to western Venezuela: 1962-1974 various periods: "humid cold tropical zone" - forest and seral stages: Obs.: *Troglodytes aedon*, *Mniotilta varia*, *Dendroica fusca*, "various migrant warblers," *Piranga flava*: Geographic variation in behavioral interaction between members of foraging associations: Zoogeography; intra and inter specific interaction: 114.

2563. Muller, P. 1973. The dispersal centres of terrestrial vertebrates in the neotropical realm. Biogeographica, 2. The Hague, W. Junk.

-------: -------: -------: Spec.; obs.; lit.: Muller defines the neotropics faunistically, based on the distributions of species of presumed North American vs. South American families of vertebrates; centers of dispersal are pinpointed based on overlapping ranges of species and/or subspecies in an attempt to reconstruct the recent biogeographical history of the neotropics; some specific faunas are discussed including some avifaunas: 944.

2564. Olrog, C. C. 1972. Causal ornithogeography of South America. Proc. Int. Ornith. Congr. 15: 562-673.

-------: -------: -------: Lit.: There are many more endemic genera in southern South America (S.A.) then in northern S. A., most of these are adapted to savannah, brushland, prairie or marsh; speciation is more developed in northern S. A.; lack of strictly endemic genera in the Amazonian region suggests recent colonization by northern elements; vicinity of the Tropic of Capricorn marks the southern limit for many tropical elements: Zoogeography: 14.

2565. Phelps, W. H., Jr. 1968. [Contribution to the analysis of the elements which constitute the subtropical avifauna of the cordilleras of the north coast of Venezuela]. Bol. Acad. Cienc. Fisicas, Matemat. Nat. (Caracas) 26: 7-43.

2566. Pitelka, F. A. 1941. Distribution of birds in relation to major biotic communities. Amer. Midl. Nat. 25: 113-137.

2567. Pycraft, W. P. 1915. The avifauna of Central America: Study in geographical distribution. Ibis ser. 10, 3: 761-780.

2568. Raikow, R. J. 1978. Appendicular myology: relationships of the New World nine-primaried Oscines (Aves: Passeriformes). Bull. Carnegie Mus. No. 7.

2569. Ramos O., M. A. & D. W. Warner. 1980. Analysis of North American subspecies of migrant birds wintering in Los Tuxtlas, southern Veracruz, Mexico. Pp. 173-180. *in* Migrant birds in the Neotropics: ecology, behavior, distribution and conservation. (A. Keast & E. S. Morton, Eds.). Washington, D.C., Smithsonian Inst. Press.

-------: Aug. 1973 - May 1974; Aug. 1974 - May 1975: Humid forest & seral stages: Spec.; B-R: *Dumetella carolinensis*, *Catharus ustulatus*, *Vireo griseus*, *Dendroica petechia*, *Seiurus aurocapillus*, *S. noveboracensis*, *Wilsonia pusilla*, *Passerina ciris*: Taxonomy; habitat use; importance of non-breeding distribution in species evolution: 38.

2570. Rand, A. L. 1948. Glaciation, an isolating factor in speciation. Evolution 2: 324-321.

2571. Richards, P. W. 1969. Speciation in the tropical rain forest and the concept of the niche. Biol. J. Linnean Soc. 1: 149-154.

2572. Ricklefs, R. E. 1970. Stage of taxon cycle and distribution of birds on Jamaica. Greater Antilles. Evolution 24: 475-477.

-------: Aug 1955: Several habitats from scrub to cloud forests: Obs.: 34 species of breeding residents observed including *Tyrannus dominicensis*, *Progne* (*subis*) *dominicensis*, *Petrochelidon fulva*, *Vireo* (*griseus*) *modestus*, *V. altiloquus*, *Dendroica petechia*, *Ammodramus savannarum*: Zoogeography: 3.

2573. ____________ & G. W. Cox. 1972. The taxon cycle in the West Indian avifauna. Amer. Nat. 106: 195-219.

2574. ____________ & ____________. 1978. Stage of taxon cycle, habitat distribution and population density in the avifauna of the West Indies. Amer. Nat. 112: 875-895.

2575. Ripley, S. D. 1979. "The ebb and flow of species" *in* The American Land. Washington, Smithsonian Exposition Books.

2576. Ryan, R. M. 1963. The biotic provinces of Central America. Acta Zool. Mex. 6(2-3): 1-54.

-------: -------: -------: Lit.: Biotic provinces are determined based on the distribution of mammals: 51.

2577. Salomonsen, F. 1955. Evolution and bird migration. Proc. Int. Ornith. Congr. 11: 337-339.

2578. ____________. 1955. The evolutionary significance of bird migration. Dan. Biol. Medd. 22(6): 1-62.

2579. Schmidt, K. P. 1954. Faunal realms, regions and provinces. Quart. Rev. Biol. 29: 322-331.

2580. Sclater, P. L. 1858. On the general geographical distribution of the members of the class Aves. J. Proc. Linnean Soc. London Zool. 2: 130-145.

2581. Shuntov, V. P. 1972. Ornithogeographic division of the world ocean. Zool. Zh. 51: 1535-1546.

2582. Sick, H. 1967. [Rivers and floodplains in Amazonia as obstacles for the avifauna]. Pp. 495-520 *in* Atas do Simposio sobre a Biota Amazonica, Vol. 5 (Zool.). (H. Lent, Ed.). Rio de Janeiro, Conselho Nacional de Pesquisas.

2583. Simpson, B. B. & J. Haffer. 1978. Speciation patterns in the Amazonian forest biota. Ann. Rev. Ecol. Syst. 9: 497-518.

2584. Simpson, G. G. 1950. History of the fauna of Latin America. Amer. Sci. 38: 361-389.

2585. ____________. 1956. Zoogeography of West Indian land mammals. Amer. Mus. Novit. 1759.

-------: -------: -------: -------: The mammalian fauna of the Greater Antilles is distinctive but appears most closely allied with that of South America: 33.

2586. ____________. 1960. Notes on the measurement of faunal resemblance. Amer. J. Sci. 258: 300-311.

2587. Skutch, A. F. 1951. Congeneric species of birds nesting together in Central America. Condor 53: 3-15.

-------; Costa Rica: -------: -------: Obs.: 31 groups of congeners sharing the same locality during breeding are given including three species of *Troglodytes* (*T*. (*aedon*) *musculus*, *T*. *rufociliatus*, *T*. *solstitialis*): Evolution; speciation: 13.

2588. Slud, P. 1976. Geographic and climatic relationships of avifaunas with special reference to comparative distribution in the neotropics. Smithson. Contrib. Zool. 212: 1-149.

-------: -------: -------: Lit.: Slud estimates the following percentages of land-bird migrants for different areas of the western hemisphere - Texas - 170 (51.3% of total land birds); Mexico - 125 (16.1%); Central America - 112 (12.2%); northwestern South America - 78 (4.2%); Central South America - 40 (2.9%); southern South America - 14 (1.8%); migrant percentages are given for many central and South America countries; Slud proposes that the decreasing number of migrants found with decreasing latitude is a function of "... increasing complexity of the resident biota which has evolved under increasingly amenable climatic conditions, rather than distance, that is responsible for a decreasing number of ecological opportunities left open to a diminishing migrant proportion.": ratios - migrant/resident; oscine/suboscine; passerine/non-passerine by latitude and country: 504.

2589. Stepney, P. H. R. 1975. First recorded breeding of the Great-tailed Grackle in Colorado. Condor 77: 208-210.

2590. Terborgh, J. W. 1973. Chance, habitat and dispersal in the distribution of birds in the West Indies. Evolution 27: 338-349.

2591. ____________ & J. R. Faaborg. 1980. Factors affecting the distribution and abundance of North American migrants in the eastern Caribbean region. Pp. 145-155 in Migrant birds in the Neotropics: ecology, behavior, distribution and conservation. (A. Keast & E. S. Morton, Eds.). Washington, D. C., Smithsonian Inst. Press.

-------, 1969-1976, 11 trips during "winter": Rainforest; scrub; montane forest; seral stages; pine forest; mangrove: Obs.; FA; B-R: Decrease in the number of migrants on islands in the West Indies appears to be correlated with increase in distance from North America and decrease in island size: 10.

2592. Udvardy, M. D. F. 1958. Ecological and distributional analysis of North American birds. Condor 60: 50-66.

-------: -------: -------: Lit.: -------: "The passerines of the two continents (Europe and North America) are much less related on the species and genus level than the birds of non-passerne orders."; "The ranges of the peculiarly North America elements suggest that they are recently penetrating (the taiga habitat)." "The limnic, grassland, desert, scrub, and even scrub-type passerines of North America are mostly only imperfectly or partly adapted to these habitats and are best regarded as recent off shoots of typical arboreal families and genera.": Zoogeography: 37.

2593. ____________. 1963. Bird faunas of North America. Proc. Int. Ornith. Congr. 13: 1147-1167.

2594. Van Valen, L. 1969. Climate and evolutionary rate. Science 166: 1656-1658.

2595. Voous, K. H. 1955. Origin of the avifauna of Aruba, Curacao and Bonaire. Proc. Int. Ornith. Congr. 11: 410-414.

2596. Vuilleumier, B. S. 1971. Pleistocene changes in the fauna and flora of South America. Sciences 173: 771-780.

2597. Vuilleumier, F. 1969. Pleistocene speciation in birds living in the high Andes. Nature 223: 1179-1180.

2598. ____________. 1970. Insular biogeography in continental regions, I. The Northern Andes of South America. Amer. Nat. 104: 373-388.

2599. ____________. 1972. Speciation in South American birds: a progress report. Acta IV Congr. Latin. Zool. 1: 239-255.

-------: -------: -------: Lit.: -------: Comments on various aspects of speciation, particularly as regards birds of the Andean highlands: 23.

2600. Wallace, A. R. 1876. The geographic distribution of animals. 2 Vols. London, Macmillan.

2601. Webb, B. E. 1976. A Groove-billed Ani in northeastern Colorado. Western Birds 7: 153-154.

2602. Whitmore, F. C., Jr. & R. H. Steward. 1965. Miocene mammals and Central American seaways. Science 148: 180-185.

2603. Wierenga, H. 1978. Maryland's first Fork-tailed Flycatcher. Maryland Birdlife 34: 171-172.

2604. Williams, G. G. 1958. Geological factors in the distribution of American birds. (Two Lida Scott Brown Lectures in Ornithology). Univ. California.

-------: -------: -------: Lit.: Vireonidae, Parulidae, Troglodytidae, Bombycillidae, Mimidae, Fringillidae, Cathartidae, Tryannidae, Thraupidae, Trochilidae, Cuculidae, Accipitridae, Caprimulgidae, Scolopacidae, Charadriidae: Most North American birds are of Central or South American origin; South American avifauna shares similarities with that of Africa - most easily explained by the presence of a tertiary land bridge between these continents: 35.

2605. Witzeman, J. 1979. Plain-capped Starthroats in the United States. Continental Birdlife 1: 1-3.

2606. Wolf, D. E. 1978. First record of an Aztec Thrush in the United States. Amer. Birds 32: 156-157.

2607. Wolfson, A. 1955. Origin of the North American bird fauna: critique and reinterpretation from the standpoint of continental drift. Amer. Midl. Nat. 53: 353-380.

2608. Zimmerman, D. A. 1978. Eared Trogon--immigrant or visitor? Amer. Birds 32: 135-139.

MIGRATION

Includes papers on timing, route selection, transient stopover dynamics, ortstreue and evolution of migration. These papers deal with the actual movements of birds, their origin and ecology. No papers on the physiology, orientation or navigation aspects of migration are included. Readers are referred to Baker (2464), Berthold (2618) and Emlen (Avian Biology, Vol. 5, 1975) for excellent reviews on these aspects of the topic.

2609. Able, K. P. 1972. Fall migration in coastal Louisiana and the evolution of migration patterns in the Gulf region. Wilson Bull. 84: 231-242.

2610. ____________. 1974. Environmental influences on the orientation of free-flying nocturnal bird migrants. Anim. Behav. 22: 224-238.

2611. Alabarce, E. A. & M. M. Lucero. 1977. [Observations on the passage of migrations in the high Pilcomayo]. Hornero 11: 410-412.

2612. Amadon, D. 1948. Continental drift and bird migration. Science 108: 705-707.
-------: -------: -------: Lit.: A critique of Wolfson's (1948) theory on the origin of transcontinental migration through continental drift: 5.

2613. Anthony, A. W. 1891. Secondary migration of birds. Zoe 1: 379-381.

2614. Avery, M. & T. Clements. 1972. Bird mortality at four towers in eastern North Dakota - fall 1972. Prairie Nat. 4: 87-95.

2615. Baird, S. F. 1866. The distribution and migrations of North American birds. Amer. J. Sci. & Arts, sec. ser., No. 121, January: 78-90; No. 122, March: 184-192; No. 123, May: 337-347.

2616. Barry, J. J. 1971. Differential fall migration. EBBA News 34: 55-66.

2617. Berlioz, J. 1950. [The general nature and origin of migration]. Pp. 1074-1088 in Traite de zoologie (Grasse, P. Ed.), Oiseaux 15.
-------: -------: -------: Lit.: Numenius borealis, Piranga olivacea; provides definitions and analysis of migration including ideas on route selection, geographical variation in migration patterns; critique of theories on the origin of migration - proximate and ultimate causes are examined; Berlioz cites 3 main factors in evolution of migration - 1) geographic conditions, 2) population density, 3) individual biological necessity: 0.

2618. Berthold, P. 1975. Migration: control and metabolic physiology. Pp. 77-128 in Avian biology, Vol. 5 (D. S. Farner & J. R. King, Eds.). New York, Academic Press.

2619. Bonhote, J. L. 1901. On a collection of birds made by Mr. T. R. Thompson at the Cay Lobos Lighthouse, Bahamas. Auk 18: 145-149.

2620. ___________. 1903. Bird migration at some of the Bahama lighthouses. Auk 20: 169-179.

Cay Lobos; Bird Rock; Cay Sal, Bahamas: fall, 1900; spring, 1901; fall, 1901; -------: Spec.: 40 species of transients struck the lighthouses on these islands during nocturnal migratory flight, usually during rain or fog: Migration route; timing: 0.

2621. Bourne, W. R. P. 1976. Migration in the doldrums. (Letters) British Birds 69: 511-512.

2622. Brosset, A. 1968. [Ecological localization of migratory birds in the equatorial forest of Gabon]. Biol. Gabonica 4: 211-226.

Makokou and Belinga, Gabon: 1963-1968: Equatorial forest, various seral stages: Obs.; spec.: *Vireo olivaceus*, *Piranga rubra* and 8 palearctic migrants which have new world relatives (conspecific or congeneric), winter in Gabon along with 16 other palearctic migrants, 10 trans-tropical migrants and 259 permanent residents; migrants apparently do not use mature forest: 12.

2623. Bullis, H. R. & F. C. Lincoln. 1952. A trans-gulf migration. Auk 69: 34-39.

60 miles SSW New Orleans, Louisiana, USA: 6-8 Apr 1951: open ocean of Gulf of Mexico: Spec.; obs.; weather data: *Ajaia ajaja*, *Buteo platypterus*, *Gallinula chloropus*, *Zenaida macroura*, *Chordeiles minor*, *Nuttallornis borealis*, *Pyrocephalus rubinus*, *Iridoprocne bicolor*, *Vireo flavifrons*, *Mniotilta varia*, *Protonotaria citrea*, *Helmitheros vermivorus*, *Vermivora ruficapilla*, *Dendroica petechia*, *D. magnolia*, *D. dominica*, *D. striata*, *Oporornis formosus*, *Geothlypis trichas*, *Wilsonia citrina*, *Setophaga ruticilla*, *Icterus spurius*, *Piranga olivacea*, *P. rubra* taken from flight of "thousands" flying north under low ceiling (200'): Distribution: 10.

2624. Buskirk, W. H. 1980. Influence of meteorological patterns and trans-Gulf migration on the calendars of latitudinal migrants. Pp. 485-491 *in* Migrant birds in the Neotropics: ecology, behavior, distribution and conservation. (A. Keast & E. S. Morton, Eds.). Washington, D.C., Smithsonian Inst. Press.

-------: -------: -------: Obs.; lit.: -------: -------: 30.

2625. Bystrak, D. (ed.). 1974. Wintering areas of bird species potentially hazardous to aircraft. Nat'l. Audubon Soc.

2626. Clench, M. H. 1969. Additional observations of the fall migration of adult and immature Least Flycatchers. Bird-Banding 40: 238-243.

2627. Cohen, D. 1967. Optimization of seasonal migratory behavior. Amer. Nat. 101: 5-18.

2628. Cooke, M. T. 1938. Returns of banded birds: Recoveries of banded marsh birds. Bird-Banding 9: 80-87.

-------: -------: -------: B-R: Includes data on birds banded in the neartic and recaptured in the neotropics including - *Ardea herodias*, *Casmerodius albus*, *Egretta thula*, *Dichromanassa rufescens*, *Hydranassa tricolor*, *Florida caerulea*, *Nycticorax nycticorax*, *Ajaia ajaja*, *Fulica americana*: Distribution; migration: 0.

2629. ___________. 1938. Some interesting recoveries of banded birds. Bird-Banding 9: 184-190.

-------: -------: -------: B-R: Includes data on birds banded in the nearctic and recovered in the neotropics including - *Anhinga anhinga*, *Ardea herodias*, *Casmerodius albus*, *Anas discors*, *Tringa flavipes*, *Limnodromus griseus*, *Calidris pusilla*, *Larus argentatus*, *L. atricilla*, *L. pipixcan*, *Sterna hirundo*, *S. dougallii*, *Zenaida macroura*, *Iridoprocne bicolor*, *Riparia riparia*, *Progne subis*, *Dumetella carolinensis*: Distribution; migration: 0.

2630. ___________. 1950. Returns from banded birds. Bird-Banding 21: 11-17.

-------: -------: -------: B-R: Tropical zone recaptures of birds banded in the nearctic; *Ardea herodias*, *Casmerodius albus*, *Florida caerulea*, *Nycticorax nycticorax*, *Fulica americana*, *Pandion haliaetus*, *Falco peregrinus*: Migratory distribution: 0.

2631. ___________. 1950. Returns from banded birds. Bird-Banding 21: 145-148.

-------: -------: -------: B-R: Tropical zone recaptures of birds banded in the nearctic; *Mniotilta varia*, *Pheucticus ludovicianus*: Migration; distribution: 0.

2632. Cooke, W. W. 1905. An untenable theory of bird migration. Condor 7: 8-9.

2633. ___________. 1915. Bird migration. USDA Bulletin 185: 1-47.

Western hemisphere: -------: Lit.: -------: Information on breeding and wintering sites, and migration routes of 42 nearctic migrants; factors affecting route evolution, rate of migration, initiation of migration: 0.

2634. Cox, G. W. 1968. The role of competition in the evolution of migration. Evolution 22: 180-192.

-------: -------: -------: Spec.; lit: -------: Migrants in tropical communities evolved a migratory habit to reduce interspecific competition with primitive resident avifauna: 30.

2635. Crawford, R. L. 1974. Bird casualties at a Leon County, Florida TV tower: October 1966-September 1973. Bull. Tall Timbers Res. Sta. 18: 1-27.

2636. ___________. 1978. Autumn bird casualties at a northwest Florida TV tower: 1973-1975. Wilson Bull. 90: 335-345.

-------: -------: -------: Spec.: Data on 41 species of transients taken in apparent migratory flight: Migration routes; timing of migration; sex/age categories: 27.

2637. ___________. Wind direction and the species composition of autumn TV tower kills in northwest Florida. Auk. (In press).

-------: -------: -------: Spec.: Data on 53 nearctic migrants killed during nocturnal migration: Route selection: 22.

2638. Denner de La Tour, G. 1957. [The problem of migration of birds considered from the inter-American viewpoint]. An. Parq. Nac. Vol. VI, pp. 25-82.

2639. Diamond, A. W. & R. W. Smith. 1973. Returns and survival of banded warblers wintering in Jamaica. Bird-Banding 44: 221-224.
Vicinity of Kingston, Jamaica: Sep 1963-Jan 1970; Oct 1970-Feb 1972: Riparian forest, "gardens," montane forest: B-R: Mniotilta varia, Limnothlypis swainsonii, Helmitheros vermivorus, Parula americana, Dendroica caerulescens, D. discolor, Seiurus aurocapillus, S. noveboracensis, Geothlypis trichas, Setophaga ruticilla: return rates ranged from 1.4% - 17.4%, survival of adults that returned at least once was calculated to be 50.6%; decreasing fidelity to wintering site with advancing age is proposed: 6.

2640. Dorst, J. 1961. The migrations of birds. London, Heinemann,

2641. Drury, W. H. & J. A. Keith. 1962. Radar studies of songbird migration in coastal New England. Ibis 104: 449-489.

2642. ___________ & I. C. T. Nisbet. 1964. Radar studies of orientation of songbird migrants in southeastern New England. Bird-Banding 35: 69-119.

2643. Eisenmann, E. 1966. Comments on repeats and recoveries of migrants in Panama. Bird-Banding 37: 286.
-------: -------: -------: Lit.: Buteo platypterus, Pandion haliaetus, Vireo olivaceus flavoviridis: Return to breeding and wintering sites: 3.

2644. Ely, C. A. 1973. Returns of North American birds to their wintering grounds in southern Mexico. Bird-Banding 44: 228-229.

2645. ___________, P. J. Latas & R. R. Lohefener. 1977. Additional returns and recoveries of North American birds banded in southern Mexico. Bird-banding 48: 275-276.
Chiapas; Oaxaca: 1971-1977: -------: B-R: Empidonax flaviventris, E. minimus, Dumetella carolinensis, Hylocichla mustelina, Vireo griseus, V. solitarius, Mniotilta varia, Helmitheros vermivorus, Dendroica magnolia, D. virens, Seiurus aurocapillus, Oporornis formosus, O. (philadelphia) tolmiei, Icteria virens, Wilsonia citrina, W. pusilla, Passerina ciris: Fidelity to wintering sites: 1.

2646. Evans, P. R. 1970. Nocturnal songbird migration. Nature 228: 1121.

2647. Faaborg, J. & J. E. Winters. 1979. Winter resident returns and longevity and weights of Puerto Rican birds. Bird-Banding 50: 216-223.
Guanica forest and Mona Island, Puerto Rico: 25 Jan - 4 Feb 1972; 6-20 Feb, 12-19 Jun 1973; 3-5 Feb, 13-14 May 1974; 20-22 Jan, 31 Dec 1975; 1-5 Jan 1976; 6-8 Jan 1978: Low, seasonaly dry, scrub forest: Spec.; B-R: Falco sparverius, Sphyrapicus varius, Mniotilta varia, Protonotaria citrea, Parula americana, Dendroica tigrina, D. coronota, D. discolor, Seiurus aurocapills, S. noveboracensis, Geothlypis trichas, Wilsonia citrina, W. pusilla, Setophaga ruticilla, Passerina cyanea: Distribution; philopatry: 10.

2648. ___________ & ___________. 1980. More returns from the Guanica forest, Puerto Rico. J. Field Ornith. (In Press).
-------: Jan 1980: Seasonally dry forest: B-R: *Mniotilta varia*, *Protonotaria citrea*, *Parula americana*, *Dendroica discolor*, *Seirus aurocapillus*, *Setophaga ruticilla*: Ortstreue: 1.

2649. Farner, D. S. 1954. Northward transequatorial migration of birds. Sci. Rev. (New Zealand) 12: 29-30.

2650. Ferns, P. N. 1975. Feeding behavior of autumn passage migrants in northeast Portugal. Ringing & Migration 1: 3-11.

2651. Fisher, A. C. 1979. Mysteries of bird migration. National Geogr. 156: 154-173.

2652. Forsyth, B. J. & D. James. 1971. Springtime movements of transient nocturnally migrating landbirds in the Gulf Coastal bend region of Texas. Condor 73: 193-207.

2653. Gauthreaux, S. A., Jr. 1971. A radar and direct visual study of passerine spring migration in southern Louisiana. Auk 48: 22-32.

2654. ___________. 1978. Importance of the daytime flights of nocturnal migrants: Redetermined migration following displacement *in* Animal migration, navigation and homing. (K. Schmidt-Koenig & W. T. Keeton, Eds.). New York. Springer Verlag.

2655. ___________. 1979. Priorities in bird migration studies. Auk 96: 813-815.
-------: -------: -------: Lit.: -------: Discusses necessity for an integrated approach to the study of migration: 7.

2656. ___________ & K. P. Able. 1971. Nocturnal songbird migration. Nature 230: 580.

2657. Gill, R., Jr. & L. R. Mewaldt. 1979. Dispersal and migratory patterns of San Francisco Bay produced herons, egrets, and terns. North Amer. Bird Bander 4:4-13.
-------: 1971-1973: -------: B-R: *Ardea herodias*, *Egretta thula*, *Nycticorax nycticorax*, *Sterna forsteri*, *S. caspia*: All species considered showed some evidence of a migration route to southern California and/or western Mexico except *A. herodias*: -------: 18.

2658. Goodpasture, K. A. 1963. Age and sex determinations of tower casualties, Nashville, 1963. Migrant 34: 67-70.

2659. ___________. 1963. Age, sex, and wing length of tower casualties: Fall migration, 1962. Bird-Banding 34: 191-199.

2660. __________. 1978. Television tower casualties, 1976. Migrant 49: 53-54.

2661. Gordon, M. S. 1977. Large-scale migrations of land birds at sea off southern California during September 1975. Western Birds 8: 65-66.

2662. Greenberg, R. 1980. Demographic aspects of long-distance migration. Pp. 493-504 *in* Migrant birds in the Neotropics: ecology, behavior, distribution and conservation (A. Keast & E. S. Morton, Eds.) Washington, D. C. Smithsonian Inst. Press.

2663. Haartman, L. von. 1968. The evolution of resident versus migratory habit in birds. Some considerations. Ornis Fenn. 45: 1-7.

-------: -------: -------: Obs.: lit.: -------: Holarctic residents, despite the possibility of a lower survival rate than migratory conspecifics, may outcompete migrants due to a higher reproductive rate accomplished through early occupation of the best territories and an early start at breeding: 19.

2664. Hall, G. A. & R. K. Bell. The diurnal migration of passerines along an Appalachian Ridge. Amer. Birds. (In Press).

Allegheny Front, border of Grant and Tucker Counties, West Virginia, U.S.A. (elev. 1200m): 1958-1979: Spruce forest: Obs.; B-R: 56,720 birds of 108 species have been banded: Many species of nocturnal migrants have been captured in apparent diurnal migration: Timing of migration; route selection: 1.

2665. Harris, M. P. 1966. Some land birds in the Caribbean. Condor 68: 517.

Caribbean Sea, various localities: October 1965: -------: Obs.: *Casmerodius albus*, *Pluvialis dominica*, *P. squatarola*, *Riparia riparia*, *Hirundo rustica*, *Dolichonyx oryzivorus*, *Icterus galbula*, *Mniotilta varia*, *Dendroica fusca*, *D. dominica*, *Seiurus aurocapillus*, *Geothylypis trichas*, *Steophaga ruticilla*: Distribution: 0.

2666. Hebrard, J. J. 1971. The nightly initiation of passerine migration in spring: A direct visual study. Ibis 113: 8-18.

2667. Hilditch, C. D. M., T. C. Williams & I. C. T. Nisbet. 1973. Autumnal bird migration over Antigua. Bird-Banding 44: 171-179.

2668. Hussell, D. J. T. 1980. The timing of fall migration and molt in Least Flycatchers. J. Field Ornith. 51: 65-71.

2669. __________, T. Davis & R. D. Montogomerie. 1967. Differential fall migration of adult and immature Least Flycatchers. Bird-Banding 38: 61-66.

2670. Ireland, L. C. & T. C. Williams. 1974. Radar observations of bird migration over Bermuda. *in* Proc. Conf. on the Biol. Aspects of the Bird/Aircraft Collision Problem. (S. Gauthreaux, Ed.). Arlington, Va., U.S.A.F. Office of Scientific Research.

2671. Jones, P. H., C. J. Mead & R. F. Durman. 1977. The migration of the Pied Flycatcher from and through Britain. Bird Study 24: 2-14.

2672. Kale, H. W. II, M. H. Hundley & J. A. Tucker. 1969. Tower-killed specimens and observations of migrant birds from Grand Bahama Island. Wilson Bull. 81: 258-263.

2673. Lack, D. 1968. Bird migration and natural selection. Oikos 19: 1-9.
-------: -------: -------: Lit.: -------: Migratory species are probably limited by wintering ground food supply: Evolutionary theory: 40.

2674. Larkin, R. R., D. R. Griffin, J. R. Torre-Bueno & J. M. Teal. 1979. Radar observations of bird migration over the western North Atlantic Ocean. Behav. Ecol. Sociobiol. 4: 225-264.

2675. Leck, C. F. 1980. Establishment of new population centers with changes in migration patterns. J. Field Ornith. 51: 168-173.
-------: -------: -------: Lit.: 33 species of old and new world migrants are mentioned: "Species of migratory birds occasionally begin breeding centers within their normal winter range or along a migration route": Migration theory: 19.

2676. Lincoln, F. C. 1934. The operation of the homing instinct. Bird-Banding 5: 149-155.

2677. ___________. 1935. The migration of North American birds. U. S. Dept. Agric. Cir. No. 363.

2678. ___________. 1936. Returns of banded birds: First and second papers. Bird-Banding 7: 38-45; 121-128.

2679. ___________. 1936. Returns of banded birds: Third paper. (Some recoveries of water birds from Latin America). Bird-Banding 7: 139-148.
Central America, South America and West Indies: -------: -------: B-R: *Pelecanus erythrorhynchos*, *Pelecanus occidentalis*, *Ardea herodias*, *Casmerodius albus*, *Egretta thula*, *Dichromanassa rufescens*, *Florida caerulea*, *Anas acuta*, *A. cyanoptera*, *A. discors*, *A. crecca*, *Aythya americana*, *Tringa flavipes*, *Larus californicus*, *Sterna hirundo*, *S. dougallii*, *S. albifrons*, *S. maxima*, *S. caspia*: Distribution: 2.

2680. ___________. 1939. The migration of American birds. New York. Doubleday, Doran & Co., Inc.

2681. ___________. 1950. Migration of birds. U. S. Dept. Int., Fish & Wildlife Service, Circ. 16.

2682. Loftin, H. 1963. Some repeats and returns of North America migrant birds in Panama. Bird-Banding 34: 219-221.
Almirante, Bocas del Toro Prov., Panama: 1961-1962: -------: B-R: 21 species of nearctic migrants banded; individuals of 8 species were recaptured: Ortstreue: 1.

2683. ___________. 1975. Recaptures and recoveries of banded native Panamanian birds. Bird-Banding 46: 19-27.
-------: 1961-1974: -------: B-R: Notes on 50 species including *Progne (subis) chalybea*, *Vireo (olivaceus) flavoviridis*, *V. (gilvus) leucophrys*: Longevity: 1.

2684. ___________. 1977. Returns and recoveries of banded North American birds in Panama and the tropics. Bird-Banding 48: 253-258.
-------: -------: -------: Lit.; B-R: Individuals of 44 species of nearctic migrants have been recorded as returns to wintering sites in the tropics: Ortstreue: 17.

2685. ___________, G. I. Child & S. Bongiorno. 1967. Returns in 1965-1966 of North American migrant birds banded in Panama. Bird-Banding 38: 151-152.
-------: -------: -------: B-R: *Vireo* (*olivaceus*) *flavoviridis*, *Vermivora peregrina*, *Dendroica pensylvanica*, *Seiurus aurocapillus*, *Oporornis formosus*, *Icteria virens*, *Setophaga ruticilla*, *Passerina cyanea*: Ortstreue: 3.

2686. ___________, D. T. Rogers, Jr. & D. L. Hicks. 1966. Repeats, returns and recoveries of North American migrant birds banded in Panama. Bird-Banding 37: 35-44.
Almirante; Gamboa; Curundu; Ancon Hill; Panama: Spring 1963 - autumn 1964: -------: B-R: 3,000 nearctic migrants of 51 species were banded as transients or winter residents; of these 26 were recaptured in years subsequent to initial capture: Ortstreue: 2.

2687. Lowery, G. H., Jr. 1945. Trans-Gulf migration of birds and the coastal hiatus. Wilson Bull. 57: 97-121.

2688. ___________. 1946. Evidence of trans-Gulf migration. Auk 63: 175-211.

2689. ___________. 1951. A quantitative study of the nocturnal migration of birds. Univ. Kansas Publ. Mus. Nat. Hist. 3: 361-472.

2690. ___________ & R. J. Newman. 1966. A continent-wide view of bird migration on four nights in October. Auk 83: 547-586.

2691. McClintock, C. P., T. C. Williams & J. M. Teal. 1978. Autumnal bird migration observed from ships in the western North Atlantic Ocean. Bird-Banding 49: 262-277.
-------: 24 Sep-5 Oct 1973; 2 Oct-21 Oct 1974: Pelagic: Spec.; obs.; radar tracking: 25 species of migrants captured: The western North Atlantic appears to be part of a major fall migration route to the West Indies and South America: 27.

2692. McClure, H. E. 1974. Migration and survival of the birds of Asia, U. S. Army Medical Component SEATO Medical Project, Bangkok, Thailand. 478 pp.

2693. Marshall, A. J. 1960. Animal periodicity in the migration and reproduction of birds. Cold Spring Harbor Symp. Quant. Biol. 25: 499-505.

2694. ___________. 1961. Breeding seasons and migration. Pp. 307-339. *in*: Biology and comparative physiology of birds, Vol. 2. (A. J. Marshall, Ed.). New York, Academic Press.

2695. Mayr, E. 1953. On the origin of bird migration in the Paciifc. Proc. Seventh Pacific Sci. Congr. 4: 387-394.
-------: -------: -------: Lit.: "It is a well-known phenomenon that northern hemisphere species tend to displace their wintering range southward as they expand their breeding range northward....The major reason seems to be physiological. To reach the new breeding quarters a strengthened physiological migratory apparatus is evolved....The winter quarters of all birds that winter in the realm of an alien fauna are the result of such secondary route prolongation": Zoogeography: 9.

2696. ___________ & W. Meise. 1930. [Theories on the history of migrants]. Vogelzug 1: 149-172.

2697. Miller, L. M. 1928. The antiquity of the migrating instinct in birds. Condor 30: 119-120.

2698. ___________. 1957. Some avian flyways of western America. Wilson Bull. 69: 164-169.

2699. Moreau, R. E. 1951. The migration system in perspective. Proc. Int. Ornith. Congr. 10: 245-248.

2700. ___________. 1961. Problems of Mediterranean-Saharan migration. Ibis 103a: 373-427, 580-623.

2701. ___________. 1972. The Palaearctic-African bird migration system. New York, Academic Press.

2702. Morton, E. S. 1977. Intratropical migration in the Yellow-green Vireo and Piratic Flycatcher. Auk 94: 97-106.
Canal Zone, Panama: Jan 1970-Jun 1971: -------: Obs.; spec.; exp.: *Vireo* (*olivaceus*) *flavoviridis*: *V*. *o*. *flavoviridis* arrives on Pacific side of Panama in late Dec; Atlantic side arrival is early Mar; Departure from Panama is late Aug; the bird's stay in Panama coincides roughly with fruiting season of main tree species exploited; removal experiments indicated presence of excess males in breeding condition: Ecology: 18.

2703. ___________. 1979. Conservation and distribution of migratory birds in Central America. Pp. 33-35 *in* Organization of American States (OAS) Technical Meeting on Conservation of migratory animals of the western Hemisphere and their ecosystems. Washington, D.C., OAS S G, Ser. P. III. 3.

2704. Mueller, H. C. & D. D. Berger. 1966. Analysis of weight and fat variations in transient Swainson's Thrushes. Bird-Banding 37: 83-112.

2705. Murphy, R. C. 1915. A note on the migration at sea of shore birds and swallows. Auk 32: 236.

2706. Murray, B. G., Jr. 1966. Migration of age and sex classes of passerines on the Atlantic coast in autumn. Auk 83: 352-360.

2707. ___________. 1976. The return to the mainland of some nocturnal passerine migrants over the sea. Bird-Banding 47: 345-358.

2708. Nickell, W. P. 1968. Return of northern migrants to tropical winter quarters and banded birds recovered in the United States. Bird-Banding 39: 107-116.

Stann Creek Valley, Belize: 1960-1965: "...stream banks, margins of marshes and drier situations": B-R: 11,095 individuals of 182 species were banded including 7,178 nearctic migrants of 73 species; returns were obtained for several species: Ortstreue: 8.

2709. Oberholser, H. C. 1919-1930. The migration of North American birds. Bird-Lore, vols. 21-32.

2710. Odum, E. P., C. E. Connell & H. L. Stoddard. 1961. Flight energy and estimated flight ranges of some migratory birds. Auk 78: 515-527.

2711. Olrog, C. C. 1975. Vagrancy of neotropical cormorants, egrets and White-faced Ibis. Bird-banding 46: 207-212.

-------: 1963-1973: -------: B-R: *Casmerodius albus*, *Egretta thula*, *Plegadis chihi*: *P. chihi* appears to be migratory, spending the austral summer breeding in the temperate zone in Argentina and the austral winter in the tropics of Rio Grande do Sul, Brasil: Migration patterns: 0.

2712. Pearson, D. L. 1980. Bird migration in Amazonian Ecuador, Peru, and Bolivia. Pp. 273-283 *in* Migrant birds in the Neotropics: ecology, behavior, distribution and conservation. (A. Keast & E. S. Morton, Eds.). Washington, D. C., Smithsonian Inst. Press.

-------: May-Aug. 1968; Jul. 1971 - Nov 1972; Feb., Mar., Sep. 1977: lowland forest; river; oxbow lake; 64 migrant species treated: status: 28.

2713. Phelps, W. H. 1961. Night migration at 4,200 meters in Venezuela. Auk 78: 93-94.

Pico Bolivar, Venezuela (elev. 4,200m): 31 Oct 1959: -------: Spec.: *Coccyzus americanus*, *Oporornis agilis*: Taken in apparent migratory flight: 0.

2714. Phillips, A. R. 1951. Complexities of migration: a review. Wilson Bull. 63: 129-136.

Arizona, U.S.A.: -------: -------: Spec.; obs.; lit.: -------: Data on a number of aspects of the migration problem: 35.

2715. ___________. 1961. [Migration and distribution of terrestrial birds in Mexico]. Rev. Soc. Mexicana Hist. Nat. 22: 295-311.

2716. Rabøl, J. 1972. Weight gains and losses by recaptures. Vogelwarte 27: 50-65.

2717. ___________ & F. D. Petersen. 1973. Lengths of resting time in various night-migrating passerines at Hesselø, southern Kattegat, Denmark. Ornis Scandinavica 4: 33-46.

2718. Ralph, C. J. 1971. An age differential in migrants in coastal California. Condor 73: 243-246.

2719. ___________. 1978. Disorientation and possible fate of young passerine coastal migrants. Bird-Banding 49: 237-247.

2720. Rappole, J. H. 1978. Seasonal distribution notes on birds from the Welder Wildlife Refuge, San Patricio County, Texas. Bull. Texas Ornith. Soc. 11: 30-34.

2721. ___________, M. A. Ramos, R. J. Oehlenschlager, D. W. Warner & C. P. Barkan. 1979. Timing of migration and route selection in North American songbirds. Pp. 199-214. in Proc. First Welder Wildlife Foundation Symposium. (D. Lynn Drawe, Ed.). Sinton, Texas, Welder Wildlife Foundation.

48 km N Corpus Christi, Texas, U.S.A.; 200 km SE Veracruz City, Veracruz, Mexico: Aug 1973-May 1975: Riparian forest (Texas); rain forest (Veracruz): Spec.; B-R; obs.; lit.: Seasonal abundance data on 34 nearctic migrants are presented: Possible factors affecting timing of migration and route selection: 67.

2722. ___________ & D. W. Warner. 1976. Relationships between behavior, physiology and weather in avian transients at a migration stopover site. Oecologia 26: 193-212.

Welder Wildlife Foundation, San Patricio Co., Texas, U.S.A.: "Fall and Spring seasons," 1973-1975: Riparian forest: Spec.; obs.: B-R: exp.: Data on 29 species of nearctic migrants that occur as transients in southeast Texas: Some transients show short-term site fidelity and intraspecific territoriality associated with weight and fat gains; a theory of proximate factors affecting migration is developed: 59.

2723. Richardson, W. J. 1974. Spring migration over Puerto Rico and the western Atlantic, a radar study. Ibis 116: 172-193.

-------: 2 Mar-29 May 1971: -------: Obs. (radar): Shorebirds and passerines: In autumn migrants arrive in southward flight over Puerto Rico from the N and NE; in spring they fly over Puerto Rico toward N and NW evidently following different routes in the two seasons; the direction of flight in both seasons is strongly correlated with following wind direction: Migration routes: 71.

2724. ___________. 1976. Autumn migration over Puerto Rico and the Western Atlantic: a radar study. Ibis 118: 309-332.

2725. ___________. 1978. Timing and amount of bird migration in relation to weather: a review. Oikos 30: 224-272.

2726. ___________. 1979. Southeastward shorebird migration over Nova Scotia and New Brunswick in autumn: a radar study. Canadian J. Zool. 57: 107-124.

2727. ___________. Proc. Int. Ornith. Congr. 17. (In Press).

2728. Rogers, D. T., Jr. 1965. Fat levels and estimated flight ranges of some autumn migratory birds killed in Panama during a nocturnal rainstorm. Bird-Banding 36: 115-116.

Almirante, Panama: 13 Oct 1963: -------: Spec.; LA: *Catharus ustulatus*, *Vireo olivaceus*, *Dendroica fusca*, *Piranga olivacea*, *P. rubra*, *Spiza americana*: Estimated flight ranges of specimens ranged from 412 to 1,179 miles: Transient flight capability: 2.

2729. ___________ & E. P. Odum. 1966. A study of autumnal postmigrant weights and vernal fattening of North American migrants in the tropics. Wilson Bull. 78: 415-433.

Almirante, Bocas del Toro, Panama (fall); Stann Creek Valley, Belize (spring): "fall" 1963; "spring" 1964: Second growth forest; citrus grove edge: Spec.; LA: Panama - *Hylocichla mustelina*, *Catharus minimus*, *C. fuscescens*, *C. ustulatus*, *Dumetella carolinensis*, *Vireo olivaceus*, *Protonotaria citrea*, *Vermivora peregrina*, *Dendroica pensylvanica*, *Seiurus aurocapillus*, *Piranga rubra*; Belize-*Dumetella carolinensis*, *Geothlypis trichas*, *Icterus spurius*, *Passerina cyanea*: -------: 10.

2730. Roselaar, C. S. 1976. Heavy fall of migrating land birds on board of a ship off Central America. Bull. Zool. Mus. Univ. Amsterdam 5: 13-18.

Caribbean Sea off Honduras, Nicaragua, and Belize: 4-7 Oct 1973: Ocean: spec.: *Contopus virens*, *Hirundo rustica*, *Catharus ustulatus*, *C. minimus*, *Vireo olivaceus*, *Mniotilta varia*, *Helmitheros vermivorus*, *V. peregrina*, *Dendroica magnolia*, *D. pensylvanica*, *D. castanea*, *D. fusca*, *Seiurus aurocapillus*, *S. noveboracensis*, *Setophaga rutilla*, *Piranga rubra*, *P. olivacea*: Migration timing and route: 7.

2731. Salomonsen, F. 1955. The evolutionary significance of bird migration. Dan. Biol. Medd. 22: 1-62.

2732. ___________. 1967. Bird migration and its riddles. Copenhagen, Munksgaard.

2733. ___________. 1972. [Bird migration and its riddles]. Copenhagen, Denmark, Munksgaard.

2734. Savile, D. B. O. 1956. Known dispersal rates and migratory potentials as clues to the origin of the North American biota. Amer. Midl. Nat. 56: 434-453.

-------: -------: -------: Lit.: -------: A critique of Wolfson's (1955) theory on the origin of migration due to continental drift: 32.

2735. Scharf, W. C. 1979. Nesting and migration areas of birds of the U. S. Great Lakes (30 April to 25 August 1976). U. S. Fish Wildl. Svc., FWS/OBS-77/2.

2736. Schenker, A. 1977. [Former distribution of the Bald Ibis *Geronticus eremita* in Europe]. Ornith. Beob. 74: 13-30.

2737. Seets, J. W. & H. D. Bohlen. 1977. Comparative mortality of birds at television tower in central Illinois. Wilson Bull. 89: 422-433.

2738. Sibley, F. C. & J. A. Spendelow. 1977. What's wrong with migration studies? N. Amer. Bird Bander 2: 115-116.

2739. Sick, H. 1967. Bird migrations due to water rise in the tropics of the New World. Vogelwarte 24: 1-6.

2740. ___________. 1968. [Bird migration in continental South America]. Vogelwarte 24 (no prelo). 217-243.

2741. Siebenaler, H. B. 1954. Notes on autumnal trans-Gulf migration of birds. Condor 56: 43-48.

2742. Stevenson, H. M. 1957. On the relative magnitude of the trans-Gulf and circum-Gulf spring migration. Wilson Bull. 69: 39-77.

2743. Stoddard, H. L. 1962. Bird casualties at a Leon County, Florida TV tower, 1955-1961. Bull. Tall Timbers Res. Sta. 1: 1-94.

2744. ___________ & R. A. Norris. 1967. Bird casualties at a Leon County, Florida TV tower: an eleven year study. Bull. Tall Timbers Res. Sta. 8: 1-104.

2745. Taylor, L. R. & R. A. Taylor. 1977. Aggregation, migration and population mechanics. Nature 265: 415.

2746. Taylor, W. K. 1972. Analysis of ovenbirds killed in central Florida. Bird-Banding 43: 15-19.

2747. ___________ & B. H. Anderson. 1973. Nocturnal migrants killed at a central Florida TV tower; autumns 1969-1971. Wilson Bull. 85: 42-51.

2748. Thiollay, J. M. 1977. Autumn migration along the eastern coast of Mexico. Alauda 45: 344-346.

Palma Sola, Veracruz, Mexico: 22 Aug-14 Sep 1976: -------: Obs.: 38 species observed in diurnal migration; including several species whose movements are well known as well as a number whose migrations are poorly documented, e.g.- *Phalacrocorax olivaceus*, *Anhinga anhinga*, *Ardea herodias*, *Florida caerulea*, *Egretta thula*, *Casmerodius albus*, *Bubulcus ibis*, *Hydranassa tricolor*, *Nycticorax nycticorax*, *Ixobrychus exilis*, *Mycteria americana*, *Eudocimus albus*, *Ajia ajaja*, *Coragyps atratus*, *Cathartes aura*, *Buteogallus urubitinga*, *Circus cyaneus*, *Himantopus mexicanus*, *Sterna sandvicensis*, *S. maxima*, *S. hirundo*, *S. caspia*, *Columba flavirostris*, *Zenaida asiatica*: Fall coastal migration volume and species composition: 0.

2749. ____________. 1979. [Importance of an axis of migration along the east coast of Mexico. Alauda 47: 235-245].
Veracruz, Mexico: 6 Apr-6 May 1978: -------: Obs.: Notes on 22 species observed during northward migratory flight including Anhinga anhinga, Pelecanus erythrorhynchos, Plegadis sp., Mycteria americana, Cathartes aura, Coragyps atratus, Accipter cooperii, Buteo lineatus, B. jamaicensis, Falco mexicanus: -------: 14.

2750. Thomson, A. L. 1926. Problems of bird-migration. London. Witherby.

2751. ____________. 1942. Bird migration, a short account, 2nd ed. London. H. F. & G. Witherby, Ltd.

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Hacienda Los Pinos (elev. 50m), Dept. Usulutan; Cerro Verde (elev. 2000m), Dept. Santa Ana, El Salvador: 1971-1972: -------: B-R: Vermivora peregrina, Dendroica townsendi, Seiurus aurocapillus, Icteria virens, Oporornis (philadelphia) tolmiei, Wilsonia pusilla: Ortstreue: 0.

2754. ____________ & ____________. 1974. Band returns in El Salvador, 1972-73 season. Bird-Banding 45: 58-59.
Dept. Usulutan; Dept. Santa Ana; Dept. Sonsonate, El Salvador (elev. 50m; 2,000m): 1971-1973: -------: B-R; Troglodytes aedon, Mniotilta varia, Vermivora peregrina, Dendroica petechia, D. townsendi, Seiurus aurocapillus, Geothylypis trichas, Wilsonia pusilla, Passerina cyanea, Spinus psaltria: Ortstreue: 1.

2755. ____________ & ____________. 1976. Band returns in El Salvador, 1973-74 and 1974-75 seasons. Bird Banding 47: 277-278.
Dept. Usulutan; Dept. Santa Ana, El Salvador (elev. 50m; 2,000m): 1971-1974: -------: B-R: Troglodytes (aedon) musculus, Mniotilta varia, Vermivora peregrina, Dendroica petechia, D. magnolia, D. townsendi, Seiurus aurocapillus, Oporonis (philadelphia) tolmiei, Geothlypis trichas, Icteria virens, Wilsonia pusilla, Passerina ciris, Spinus psaltria: Ortstreue: 2.

2756. Tordoff, H. B. & R. M. Mengel. 1956. Studies of birds killed in nocturnal migration. Univ. Kansas Publ. Mus. Nat. Hist. 10: 1-44.

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2758. Wallace, D. I. M. 1975. Migration in the doldrums. British Birds 68: 202-203.

2759. Weir, R. D. 1977. Annotated bibliography of bird kills at man-made obstacles: A review of the state of the art. Dept. Fish. Environ., Environmental Mgmt. Svc., Can. Wild. Svc., Ontario Region.

2760. Wetmore, A. 1926. The migrations of birds. Cambridge, Mass., Harvard Univ. Press.

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2762. ____________. 1947. Lowery on trans-Gulf migration. Auk 64: 217-238.

2763. ____________. 1950. The nature and causes of the coastal hiatus. Wilson Bull. 62: 175-182.

2764. ____________. 1958. Evolutionary aspects of bird migration. Lida Scott Brown Lectures in Ornithology, Univ. of California, Los Angeles, 53-85.

-------: -------: -------: Lit.: Williams proposes that the winter range was the place of evolutionary origin for most nearctic migrants that winter in the neotropics; the theory is supported by some specific examples (*Aythya affinis*, *Grus canadensis*, *Anas discors*, *Pelecanus erythrorhynchos*, *Ajaia ajaja*) and distributional tables: 14.

2765. Williams, T. C. & J. M. Williams. 1978. Orientation of trans-Atlantic migrants. pp. 239-251. In: Symposium on animal migration navigation and homing. (K. Schmidt-Koenig & W. T. Keeton, Eds.). New York. Springer-Verlag.

2766. ____________, ____________, L. C. Ireland & J. M. Teal. 1977. Autumnal bird migration over the western North Atlantic Ocean. Amer. Birds 31: 251-267.

2667. ____________, ____________, ____________ & ____________. 1978. Estimated flight time for trans-Atlantic autumnal migrants. Amer. Birds 32: 275-280.

Western North Atlantic Ocean: -------: -------: Radar tracking: -------: Radar indicates that passerines flying from the northeast coast of North America to the north coast of South America take more than 80 hours to complete the trip: Migration route: 16.

2768. ____________, ____________, J. M. Teal & J. W. Kanwisher. 1972. Tracking radar studies of bird migration. *in*: Animal orientation and navigation: a symposium. NASA SP 262, Washington, D.C., U.S. Govt. Printing Office.

2769. Wolfson, A. 1948. Bird migration and the concept of continental drift. Science 108: 23-30.

2770. Woods, C. A. 1975. Banding and recapture of wintering Warblers in Haiti. Bird-Banding 46: 344-346.

8 km Miragoane, Dept. du Sud, Haiti (650m elev.): 2-10 Jan 1974; 22 Dec 1974-12 Jan 1975: "brushy areas": B-R: *Mniotilta varia*, *Helmitheros vermivorus*, *Parula americana*, *Dendroica palmarum*, *D. tigrina*, *D. discolor*, *D. caerulescens*, *Seiurus aurocapillus*, *Geothlypis trichas*, *Setophaga ruticilla*: Ortstreue: 3.

2771. Zimmer, J. T. 1938. Notes on migrations of South American birds. Auk 55: 405-410.

-------: -------: -------: Spec.; Lit.: Vireo olivaceus: Comments on migrations from south and north temperate regions into the tropics; amounts of overlap in temperate migrant and tropical resident populations of the same species: 0.

MIGRANTS AS PESTS

The major problems associated with nearctic migrants are the effect of granivorous species on crops and the possibility that migrants can serve as vectors for transportation of fungi, algae, viruses and other pathogens from one area to another.

Migrants also cause some problems with airplanes.

2772. Bahl, A. K., B. S. Pomeroy, B. C. Easterday & S. Mangundimedjo. 1975. Isolation of Type A influenza viruses from the migratory waterfowl along the Mississippi flyway. J. Wildlife Disease 11: 360-363.

2773. Bennett, G. F., H. Witt & E. M. White. 1980. Blood parasites of some Jamaican birds. Canadian J. Wildlife Disease 16: 29-38.

2774. Besser, J. F. 1978. Improvements in the use of 4 amino pyridine for protecting agricultural crops from birds. Proc. Vert. Pest. Conf. 8: 51-53.

2775. Bowen, G. S. & R. G. McLean. 1977. Experimental infection of birds with Epidemic Venezuelan encephalitis virus. Amer. J. Trop. Med. Hyg. 26: 808-814.

2776. Calisher, C. H., K. S. C. Maness, R. D. Lord & P. H. Coleman. 1971. Identification of two South American strains of Eastern equine encephalomyelitis virus from migrant birds captured on the Mississippi delta. Amer. J. Epidemiol. 94: 172-178.

2777. Calvi, C., J. F. Besser, J. W. De Grazio & D. F. Mott. 1977. Protecting Uruguayan crops from bird damage with methiocarb and 4-aminopyridine. Bird Control Seminar, Bowling Green, Ohio 7: 255-258.

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2779. De Guerne, J. M. 1888. [On the dissemination of freshwater organisms by web-footed birds]. Soc. Biol. 8: 294-298.

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2781. Dickerman, R. W., C. M. Bonacorsa & W. F. Scherer. 1976. Viremia in young Herons and Ibis infected with Venezuelan Encephalitis Virus. Am. J. Epidemiol. 104: 678-683.

New York and New Jersey, USA: -------: -------: Spec.; LA: Casmerodius albus, Egretta thula, Nycticorax nycticorax: Heron species could serve as Venezuelan encephalitis reservoirs for some vector species mosquitoes: 15.

2782. ____________, W. F. Scherer, A. S. Moorhouse, E. Toaz, M. E. Essex & R. E. Steele. 1972. Ecologic studies of Venezuelan encephalitis virus in Southeastern Mexico. VI. Infection of Wild Birds. J. Trop. Med. Hyg. 21: 66-78.
Sontecomapan, Veracrux, Mexico: "1961-1968": -------: Spec.; LA: Of 139 species, 59 were considered nearctic migrants; many species of ciconiiforms have breeding populations in the region as well as *Charadrius wilsonia*, *Himantopus mexicanus*, *Chordeiles acutipennis*, *Vireo olivaceus flavoviridis*, *Agelaius phoeniceus*; none of the 1,396 migrants tested, and only 1%-3% of nesting birds tested were positive for viral encephalitis antibodies (evidence of infection): Distribution; ecology: 16.

2783. ____________, ____________ & B. A. Pancake, et al. 1972. St. Louis encephalitis virus isolated from a nestling Common Egret in southeastern Mexico. Bol. Ofic. Sanit. Panamer (English edition), 4: 26-30.
Minatitlan, Veracruz; San Blas, Nayarit; Isla Puntachal, Chiapas Mexico: 1963-1967: Flooded swamp forest; mangrove swamp: *Anhinga anhinga*, *Butorides striatus*, *Casmerodius albus*, *Egretta thula*, *Florida caerulea*, *Hydranassa tricolor*, *Nycticorax nycticorax*, *Nyctinassa violacea*: Birds could be involved with amplifaction of arboviral strains pathogenic to man: 19.

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2785. Everard, C. O. R., B. Tota, D. Bassett & C. Ali. 1979. *Salmonella* in wildlife from Trinidad and Granada, W. I. J. Wildlife Diseases 15: 213-219.

2786. Galindo, P., P. H. Peralta, R. B. MacKenzie & H. K. Beye. 1964. St. Louis encephalitis in Panama: A review and a progress report. Amer. J. Trop. Med. Hyg. 13: 455-456.

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2789. Heald, F. D. & R. A. Studhalter. 1914. Birds as carriers of the chestnut-blight fungus. J. Agr. Res. 2: 405-422.

2790. Herman, C. M. 1962. The role of birds in the epizootiology of eastern encephalitis. Auk 79: 99-103.
-------: -------: -------: Lit.: A list of 48 species of birds known to have been infected by encephalitis virus is provided including 30 nearctic migrants: "Many investigators have emphasized that the migration phenomenon of birds is a potential for spreading the virus. Available information, however, does not support this hypothesis": 14.

2791. Howitt, B. F., L. K. Bishop, R. H. Gorrie, R. E. Kissling, G. H. Hauser & W. L. Trueting. 1948. An outbreak of equine encephalomyelitis, eastern type, in southwestern Louisiana. Proc. Soc. Exp. Biol. & Med. 68: 70-72.

2792. Johnson, H. N. 1960. Public health in relation to birds. Arthropod borne viruses. Trans. N. Amer. Wildlife Conference. 25.
-------: -------: -------: Lit.: *Butorides striatus*, *Nyctanassa violacea*, *Zenaida macroura*, *Vireo griesus*, *Oporornis formosus*, *Euphagus cyanocephalus*, *Agelaius phoeniceus*, *Xanthocephalus xanthocephalus*: Migratory birds may serve as a reservoir for arthropod-borne viruses, especially in tropical and semi-tropical regions: 43.

2793. Kirmse, P. & H. Loftin. 1969. Avian pox in migrant and native birds in Panama. Bull. Wildlife Disease Assn. 5: 103-107.
Curundu, Canal Zone; Cerro Punta, Chiriqui Prov.; Almirante, Bocas del Toro Prov., Panama: 15 Sep-6 Dec 1967: Second growth deciduous forest; montane wet forest; tropical wet forest: Spec.; B-R; obs.: *Empidonax traillii*, *Dumetella carolinensis*, *Catharus ustulatus*, *C. minimus*, *C. fuscescens*, *Hylocichla mustelina*, *Oporornis philadelphia*, *Seiurus motacilla*, *S. aurocapillus*, *Piranga rubra*: 165 individuals of 9 migratory species were found to be infected with avian pox that could serve as a source for infection of domestic fowl: 7 permanent resident species also had infected individuals. Epidemiology: 7.

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2802. Stamm, D. D. & R. J. Newman. 1963. Evdence of southward transport of arboviruses from the U. S. by migratory birds. An. Microbiol. (Rio de Janeiro) 11A: 123-133.

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2805. Ventura, A. K. 1965. St. Louis encephalitis virus in Jamaican birds. Amer. J. Trop. Med. Hyg. 14: 297-393.

-------: -------: -------: Spec.; LA: *Florida caerulea*, *Nyctanassa violacea*; *Anas platyrhynchus*, *Himantopus mexicanus*, *Vireo altiloquus*, *Helmitheros vermivorus*, *Parula americana*, *Dendroica caerulescens*, *D. palmarum*, *Seiurus aurocapillus*, *Geothlypis trichas*, *Setophaga ruticilla*: 17% of 238 wild birds tested were positive for St. Louis encephalitis virus infection: Epidemiology: 17.

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2807. ____________ & D. W. French. 1970. Dissemination of fungi by migratory birds: survival and recovery of fungi from birds. Canadian J. Bot. 48: 907-910.

-------: -------: -------: Exp.; B-R; LA: -------: Migratory birds could act as transcontinental dispersal agents for cereal rust fungi: Epidemiology: 25.

2808. Work, T. H. 1963. Virology in the biology of birds. International Ornith. Congr. 13: 570-580.

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CONSERVATION

Problems and prospects directly and indirectly related to preservation of migrant populations in the neotropics, including - effects of pollutants, effects of loss of habitat on avian species; conservation plans for political units in the neotropics.

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2819. Coimbra, A. F., Jr. 1971. Three forms of Avi Fauna of Northeastern Brazil threatened with extinction: *Tinamus solitarius perambucensis*, *Mitu mitu mitu* and *Procnias averano averano*. Rev. Bras. Biol. 31: 239-247.
Naquele State and Alagoas State, Brazil: Dec. 1970: -------: Obs.; spec.: -------: Serious effects of habitat destruction on avifauna: 19.

2820. de Visscher, M. N. 1976. [Management aspects of the Morrocoy National Park based on an ecological study of the avifauna]. Doc. de trabajo #9 FAO (UNO) Ven. 019. 100 pp.

2821. Dickinson, S. 1968. San Miguel Allende, Guanajuato Mexico establishes sanctuary. Florida Nat. 41: 139-140.

-------: -------: Lake, desert scrub: Obs.: *Anas strepera*, *A. acuta*, *A. crecca*, *A. discors*, *A. cyanoptera*, *A. americana*, *A. cylpeata*, *Aythya americana*, *A. valisineria*, *A. affinis*, *Bucephala clangula*: Conservation; distribution: 0.

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2827. Hunsaker, D., II. 1972. National Parks in Colombia. Oryx 11: 441-448.

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Costa Rica: -------: Cloud forest: Obs.: -------: Comments on conservation problems in Central America: 0.

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Volcano Atitlan, Dept. Suchitepequez; Cuchumatanes, Guatemala (1500-5200 m): Mar-Jun 1968: Cloud forest: Obs.: -------: Conservation issues discussed: 9.

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2837. Leck, C. F. 1968. Cerro Punta. Florida Nat. 41: 1-147.

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2840. Lum, A. L. 1978. Shorebird fauna changes of a small tropical estuary following habitat alteration: biological and political impacts of environmental restoration. Environ. Management 2(5): 423-430.
Paiko Lagoon, Oahu, Hawaii: 1969 - 1973: Estuary: Obs.: Pluvialis dominica, Arenaria interpres, Calidris alba, Heteroscelus incanus, Himantopus mexicanus: "Restoration" of a sanctuary lagoon resulted in significant decrease in utility of the habitat to shorebirds: Political and ecological considerations in conservation: 14.

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LAWS AND CONVENTIONS

Resource protection in the Western Hemisphere is recognized as an important problem of international concern. However, effective confrontation of the problem requires much more than recognition or concern. Outlined below are some of the basic steps necessary to develop a viable international program for resource protection:

1. organization of interest at the international level.
2. convening of an international conference to draw up a document for signature by representatives of nations attending the conference.
3. organization of interest in each of the signatory nations so that laws will be passed which implement the terms of the international convention agreements.
4. provision of funds for proper enforcement of new laws.
5. instruction of law enforcement officers and local officials for administraion of the new laws.
6. establishment of constitutionality of the new laws through test cases in court.

Steps 1 &2 above seem to be the easiest to accomplish. As this section of the Bibliography shows, there have been a number of international conventions which have dealt with cooperative preservation of wildlife (3228, 3230, 3231, 3235, 3243, 3237, 3238, 3226, 3245). Step 3 is more difficult, but many Western Hemisphere nations have laws on the books which help to implement the intent of the original conventions (3227, 3229, 3236, 3239, 3240, 3241, 3242).

Steps 4, 5, and 6 are very difficult. These serve as the major road blocks to effective environmental protection in all countries in the Western Hemisphere. Even in the United States, where both funding and public sympathy support wildlife preservation, there are often problems in enforcement and/or interpretation of the laws (3233, 3244, 3232, 3234).

In light of the importance of local authorities in promulgating conservation and enforcing protection for wild flora and fauna, a country-by-country assessment of the effectiveness of wildlife legislation should be a high priority for future international conservation efforts. The amounts of published information on this topic at present is negligible. Such a survey would require copies of statutes, visits to individual countries, and interviews with people involved with enforcement, litigation and legislation at the local and regional levels.

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APPENDIX 7

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Urban, E.K. 469.

Valarezo-Delgado, S. 1290.

Valdes, J.B. 3148.

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Vande Kerckhove, G.A. 2295.

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van Tets, G.F. 1527.

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Van Tyne, J. 153, 250, 475, 557, 1526, 1691, 2070, 2757.

Van Valen, L. 2594.

Van Velzen, W.T. 1658, 2952, 2953.

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Vaurie, C. 679, 1391.

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Ventura, A.K. 733, 2805.

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Vermeer, K. 2879, 3222.

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Viana, F.C. 3223.

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Viera de Mello Netto, A. 3081, 3082.

Vigil, C. 979.

Villa, J. 3141.

Villeda, A. 3259.

Vincente, V.P. 1836.

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Voous, K.H. 14, 644, 645, 646, 647, 648, 791, 792, 1417, 1742, 1821, 1837, 1843, 2595.

Voss, W.A. 1095, 1104, 1121, 1122, 1123, 1124, 1126, 1127, 1649.

Vuilleumier, B.S. 2596.

Vuilleumier, F. 996, 1514, 2434, 2435, 2597, 2598, 2599.

Wace, R.H. 1303.

Wagner, R.H. 1303.

Wagner, H.O. 1919, 2436.

Waide, R.B. 476, 2437, 2438.

Walcott, C.F. 2958.

Walker, R.A. 2881.

Wallace, A.R. 2600.

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Ward, F.P. 3275.

Ward, P. 2254, 2439, 2440.

Warner, D.W. 339, 477, 478, 2172, 2391, 2392, 2569, 2721, 2722, 2864.

Warner, G.M. 2806, 2807.

Warriner, J. 1747.

Warriner, R. 1747.

Wasserman, D. 3270.

Wasserman, M. 3270.

Wasserstrom, R. 3153.

Watson, G.E. 76, 699, 1146, 1598.

Watters, R.F. 3154.

Webb, B.E. 2601.

Webb, L.J. 3058.

Weber, W.C. 1949.

Webster, B. 2959.

Webster, J.D. 359, 479, 480, 481, 482, 483, 484, 485, 486, 2073, 2097, 2210.

Weigel, R.D. 2926.

Wier, D. 3276.

Weir, R.D. 2759.

Weiss, W.J. 2063.

Weller, M.W. 980, 2813.

Wells, J.G. 793.

Werther, W. 1814.

Weske, J.S. 2426.

Westeroff, T.R. 2158.

Wetmore, A. 26, 36, 112, 154, 155, 206, 251, 487, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 711, 712, 713, 836, 837, 838, 839, 901, 1271, 1272, 1273, 1274, 1275, 1515, 1531, 1626, 1743, 1755, 1873, 2760, 2927, 2928, 2929, 2930, 2931, 2932, 2933, 2934, 2935, 2936, 2937, 3260.

Weyer, D. 160.

Weyl, R. 3155.

Whitacre, D.F. 1730.

Whitcomb, B.L. 2841, 2882, 2961, 2962, 2963.

Whitcomb, R.F. 2841, 2882, 2883, 2884, 2948, 2960, 2961, 2962, 2963.

Whitcomb, S.B. 2963.

White, E.M. 2773.

White, S.C. 2441.

Whitmore, F.C., Jr. 2602.

Wiens, J.A. 2442, 2443.

Wierenga, H. 2603.

Wight, H.M. 3286.

Wiley, R.H. 2444.

Wilcox, B. 2445.

Wilcox, D.R.C. 2445.

Williams, C.B. 878.

Williams, G.G. 2150, 2604, 2761, 2762, 2763, 2764.

Williams, J.M. 764, 2765, 2766, 2767, 2768.

Williams, R.L. 1710.

Williams, S.L. 1804.

Williams, S.O., III. 483, 1611.

Williams, T.C. 2667, 2670, 2691, 2765, 2766, 2767, 2768.

Willis, E.O. 571, 1128, 1129, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2885.

Willson, M.F. 2428, 2454, 2455, 2456, 2457.

Wilson, A. 63.

Wilson, D.E. 545.

Wilson, E.O. 879, 2542, 2543.

Wilson, K.R. 2502.

Wilson, M.M. 2813.

Wilz, K.J. 2090.

Wingate, D.B. 77.

Winge, Oluf. 1130.

Winter, B. 994.

Winters, J.E. 2647, 2648, 3249.

Witherby, H.F. 15.

Witt, H. 2773.

Wittenberger, J.F. 2157, 2232.

Witzeman, J. 2605.

Wolf, D.E. 2606.

Wolf, L.L. 207, 208, 241, 1920, 1921.

Wolfson, A. 2158, 2607, 2769.

Wolniewicz, E. 3156.

Wood, N.A. 2116.

Woodrum, M.L. 3244.

Woods, C.A. 2770.

Woods, R.W. 1304.

Woolfenden, G.E. 2091.

Work, T.H. 2796, 2808.

World Wildlife Conference. 3245.

Worth, C.B. 572, 1991, 2137.

Worth, D.B. 2809.

Wright, H.W. 488.

Wright, L.M. 2065.

Wunderle, J.M., Jr. 2122.

Wyatt, C.W. 1969.

Yanez, J.L. 1138, 1869, 1870, 1871.

Yelpez, A.F. 1516.

Yepez T., G. 1482, 1483, 1517, 1518, 1519.

Yntema, J.A. 782.

Young, C.G. 1326.

Young, J.R. 3163.

Young, O.P. 2778.

Young, W.F. 160.

Yunick, R.P. 1973.

Yzurieta, D. 1799.

Zahavi, A. 2440, 2458a.

Zaldivar, R. 3225.

Zaneveld, J.S. 644.

Zapata, A.R.P. 981, 982, 1844.

Zappey, W.R. 681.

Zarur, A. 3172.

Zavala Zavala, D. 3056.

Zeledon, J.C. 209, 210.

Zell, M. 3161.

Zettl, B.J.E. 3011.

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Zim, H.S. 62.

Zimmer, J.T. 902, 1392, 1393, 1394, 1395, 1520, 2187, 2771.

Zimmerman, D.A. 490, 491, 2193, 2608.

Zimmerman, M.A. 491.

Zotta, A.R. 983.

Zuberbueler, E.A. 984.

Zuvekas, C. 3157.

Addendum

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Kushlon, J. 3300.

United States Dept. of Interior 3302.

APPENDIX 8

Scientists with Research Interests in Nearctic Migrants in the Neotropics

In compiling this list we have tried to contact every living individual who had done, was doing, or intended to do research on migrants in the Neotropics. Every researcher for whom we could obtain an address was sent a questionnaire in his native tongue along with a stamped, return envelope. Part of the questionnaire requested that names of other persons with interests in migrant birds known to the contacted party be forwarded to us.

To assure that no one was left out, we also posted a notice in the Ornithological Newsletter requesting that anyone who had information and wished to be included on the list should contact us.

Only those persons indicating an active interest in migratory bird research have been included in the final list.

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Permits are needed for any internal or external commerce or trade in wildlife or wildlife products, with detailed permit requirements, such as the species, number, intended use and place of origin. The regulatory authority has power to set further standards.

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provides for establishing parks and refuges, and for a list of protected species. These are to include, in general, songbirds and other decorative birds, as well as rare species protected by the International Union for the Conservation of Nature. Although the law requires the Forestry Development Center to implement these provisions with regulations, none had been

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wildlife products except for animals bred in captivity in registered breeding farms, or for limited scientific purposes. Any authorized trade between States or abroad requires a special permit by the Brazilian Institute of Forestry Development (IBDF).

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breeding situation (Resolution No. 103 of 10/17/78). These laws apply in all the national territory, including free ports and zones, an excellent provision which avoids enforcement problems encountered in other countries.

Colombia has one of the oldest park systems in South America, founded in 1948 (the first U. S. park, Yellowstone, was created in 1872), and greatly

APPENDIX 9

by Byron Swift

Summary of Wildlife and Environmental Laws of Latin American Countries

The countries of Latin America have experienced a marked growth in environmental interest and have greatly expanded their park system during the last decade. They have not, however, committed the resources needed to enforce these laws or to adequately protect their parks.

All countries have laws protecting the wildlife resource, and considerable progress has been made in the last decade to expand these from a few decrees concerning hunted or commercially used species to general wildlife management laws. Most countries have such updated laws, and also laws controlling the export trade in wildlife, especially since the creation of the Convention on International Trade in Endangered Species (CITES) in 1973. However, a lack of trained people and low budgets have generally precluded field enforcement of these laws except in park areas.

All countries are also experiencing a serious deforestation problem, and all have laws requiring or encouraging reforestation. On the other hand, they also have laws and policies which encourage the clearing of forested land that is not within parks or forest preserves. The lack of a tradition of forestry, the social stigma associated with field work and research, and the lack of training facilities all contribute to poor implementation of forestry laws.

Most countries have health-based environmental pollution laws, and some require permits for discharges of pollutants. However, much of Latin America, even in urban areas, still lacks a sewer system, with the

Ecuador's Forestry laws are considered good, but not often enforced. On national territory, the law provides for protective forests which serve to conserve soil, water or forest life, and production forests which are meant to be rationally utilized. Owners of private forests may only exploit them with the authorization of the Department of Forestry. Private result that much waste is dumped directly into streams. In general, the pollution laws lack implementing regulations, and no country has an effective program to enforce its pollution control laws.

As for the future, the following comment made on Costa Rica can be generalized: "The consensus of these individuals [who have a technical or administrative background in environmental problems] is that environmental protection actions will be taken in the area of creating new parks and in increasing resource management, but that strong action to implement existing pollution control authority is not to be anticipated." US MAB profile on Costa Rica (July 1981).

Summaries of the wildlife and environmental laws in Latin America on which the author was able to obtain information are provided below.

Mexico

Wildlife Laws

Mexico coordinates its annual hunting regulations for gamebirds with those of the United States and Canada, creating a coordinated set of season lengths and bag limits for North America and Mexico. Countries south of Mexico are not included, even though they possess some of the same migratory bird resources.

Mexico additionally establishes quotas and open seasons for the capture and sale of 52 species of ornamental and songbirds, such as tanagers and cardinals though the General Hunting Law apparently forbids commerce in such species. The Hunting Law further prohibits the hunting of four dozen specified endangered species of birds and mammals.

Although Mexico has not yet signed CITES, it does require special permits in order to export any wildlife species. Commercial export is allowed for parrot species, of which Mexico exports large numbers.

CENTRAL AMERICA

Each of the seven countries of Central America, Guatemala south to Panama, possesses basic health and pollution laws, a forestry law, and laws dealing with the wildlife resource.

Wildlife Laws

Wildlife Trade Laws. Permits are now required for wildlife exports in all countries, and Panama. Costa Rica, Nicaragua and Belize have significantly curtailed exports by banning all commercial trade in wildlife. Every country except El Salvador has also signed the Convention on on International Trade in Endangered Species, which restricts trade in endangered species.

Enforcement of these laws is considered fair, for countries which have limited exports to one or a few ports where control is easier. However, even with these safeguards, illegal smuggling, especially of reptile products and parrots, remains a problem in all countries.

Hunting and Management Laws. Five countries also have a general wildlife statute which regulates hunting in the country, the exceptions being Honduras and El Salvador:

Belize: Wildlife Protection Act of 1981, Stat. Instr. No. 4 of 1981 (Gazette 11/28/81);

Costa Rica: Wildlife Conservation Law No. 4551 of 4/15/70 (L.G. 4/28/70);

Guatemala: General Hunting Law No. 8-70 of 4/14/70 (D.O. 4/16/70);

Nicaragua: General Hunting Law No. 206 of 10/16/56 (L.G. 11/3/56) (a new law is proposed);

Panama: various decrees, including Decree no. 23 of 1/30/67 (G.O. 3/10/67) and DIR 002-80 of 1/24/80.

These laws generally prohibit hunting of listed endangered species and define the methods and seasons for hunting game species, but do not mention other species at all.

Several of these laws have ambiguous provisions which relate to songbirds. For example, the general hunting law in Guatemala (as well as Mexico) prohibits the hunting or capture of songbirds in one section, while in another it states that hunting for commercial purposes is permitted only for songbirds.

There are other problems with these laws. Chief among them is lack of funding and personnel, resulting in a virtual lack of field enforcement. The government wildlife office in each country only consists of roughly a half dozen people in a central office who are preoccupied with issuing permits, for trade and other activities.

One exception to the virtual lack of field enforcement is the white-winged dove hunting in Honduras and Nicaragua by North Americans; here the license fees paid by the foreign hunters allow for a couple of field agents to monitor the hunt and the population.

Another problem is pointed out by Dr. Christopher Vaughn at the National Agrarian University in Costa Rica. His investigations in several countries have led him to believe that the closed seasons for hunting appear to be randomly selected, and as often as not coincide with the breeding season as avoid it.

Forestry Laws

Each country has a forestry law which creates a government body responsible for forest management and contains at the least a mandate for sound timber management, reforestation and prevention of soil erosion. Most countries provide tax incentives for reforestation efforts. Some countries such as Costa Rica have further provisions which require a permit to cut any forested area, prohibit the cutting of trees in watersheds and adjacent to rivers, and require farms on lands fit for forestry to leave 25% of their land forested.

However, there is a general lack of resources to enforce these laws. "Although all Central American countries have legislation requiring reforestation by logging companies, none have an effective method of enforcing the laws." US MAB Draft Environmental Profile of Nicaragua (Apr. 1981).

These countries also have various incentives for clearing forest land: Panama provides easy credit terms, Costa Rica imposes a tax on uncultivated land in excess of 100 hectares, with revenues going to the Institute of Land & Colonization (Law No. 3042 of 10/9/62),and Guatemala law provides that such land can be expropriated. These latter types of laws are apparently infrequently enforced, however.

The forest resource has suffered a dramatic decline in Central America due to uncontrolled agricultural settlement. Two thirds of the original forests are gone, and at current rates few forests that are not placed under protected status will remain by 1990. This poses severe problems for these countries because much of their land is inappropriate for agricultural use and has steep slopes, resulting in the rapid erosion and debilitation of the land once it is cleared.

Environmental Pollution Laws

Although basic water and air pollution control laws exist in most of these countries, the following comment can be generalized: "As for pollution control legislation, it has been noted that in general implementation and enforcement of such provisions are severely hampered by: the absence of standards and emission/effluent limitations; the lack of trained enforcement staff and monitoring equipment; and a lack of commitment on the part of agencies with jurisdiction." US MAB Draft Environmental Profile on Guatemala (1979).

Water pollution laws in Central American countries generally authorize an agency to regulate discharges of wastewater, contaminants and solid waste into the water. Several, such as Costa Rica and Honduras, prohibit such discharges without a permit. These laws are written in general language using a health or "legal nuisance" type of standard, and do not set any effluent standards. Additional difficulties in enforcement are the lack of enforcement resources given to these agencies and the lack of any tradition of regulation in these countries.

Air pollution: Most countries have laws authorizing the Health Ministry to regulate air pollution from industrial sources which pose a health danger, and the amount of smoke emissions from vehicles (in Guatemala's case, for buses only). The language of these laws are so general they are difficult to enforce, and the enforcement problems noted above apply.

Pesticides: Large quantities of pesticides are used in Central America, primarily in cotton growing areas where forty applications may be made yearly and over 3000 pounds of pesticides applied per square mile. The laws regulating pesticides in each country (except Honduras) generally require their registration and correct labelling. There is one record of a particular pesticide being banned, Phosbel in Guatemala (Acuerdo of 10/26/77). There are particular problems with pesticide use by small farmers, and a study by Dr. Joe Saunders at CATIE in Costa Rica finds that such farmers tend to regard all pesticides as alike and fail to understand that the different pests require different treatment.

CARIBBEAN

Dominican Republic

The Forest Law (Law No. 5856 of 1962) and its amendments charge the government with the conservation, restoration, development and utilization of forest vegetation. The law applies to both private and public land and authorizes the forestry agency to dictate conservation and reforestation measures. The law prohibits the cutting of any tree without a permit, and a further decree promulgated in 1969 in response to uncontrolled clearing of land prohibits the issuance of such permits save in exceptional circumstances. This decree was implemented by the army and closed all private sawmills and greatly reduced clearing of land. However, rural population problems continue to lead to invasions of national and private lands.

Law 6 of 1965 creates an agency to conserve streams, lakes, protect watersheds, and implement environmental and erosion control. However, the agency has never been able to gain full control of its legal functions, and an additional lack of technical capability, funding and political support make it difficult to fulfill its legal mandate.

The Dominican Republic's Hunting Law dates from 1931, and was still not updated as of 1981, though a comprehensive new law has been proposed. The current law sets seasons and bag limits for game species, but does not mention endangered species or allow control of the many exotic species introduced in the country. The Republic's Parks and Forestry Laws create nine categories of protected areas in their wildlands system.

Source: US AID Environmental Profile of the Dominican Republic (Washington 1981).

Haiti

Haiti suffers from a degree of environmental degradation almost without equal in the world. Over 98% of its forests are gone, resulting in such extreme soil erosion and desertification that one percent of its remaining arable land is being lost annually.

Several laws provide for reforestation of watersheds in order to protect water supplies and for the creation of parks and protected forest preserves. However, there is no tradition of public protection of forests, and it has been observed that there has been no enforcement of the forest protection laws. Haiti's Constitution simultaneously obligates landowners to cultivate their lands and to protect against soil erosion.

Haiti's Wildlife Law (Decree of 3/31/71) establishes hunting rules and protects certain species of birds, including herons, hawks, owls and most passerines.

A 1979 report found no laws regarding air pollution, and water legislation concerning only the provision of safe drinking water, the appropriation of use of water, and a mandate to prevent the pollution of marine environments (Decree of 4/8/77).

Source: US Man & the Biosphere (MAB) Program, Draft Environmental Profile on Haiti (1979).

Jamaica

Jamaica's Wildlife Protection Act of 1945 prohibits the killing of various animals and all non-game birds, except for various pest species. A hunting season may be called annually for specific game birds, but none has been set since 1974. Reportedly, "adherence to and enforcement of this law is slack."

The Forest Protection Act of 1937 creates the Forest Department to develop soil, water and forest conservation methods, and prohibits the cutting of trees without a permit. A serious problem here and in other areas is the lack of technical training; due to a lack of a forestry tradition, there are no forestry training programs in Jamaica. Enforcement is considered to be lacking.

Jamaica has various water use laws which are not well coordinated, and only 7% of the country was served by a sewer system by 1980. Jamaica's Clean Air Act requires owners of operations which discharge noxious air pollutants to use "best practicable means of controlling it", but neither definite standards nor an adequate regualatory structure has been established.

Source: US MAB Draft Environmental Profile on Jamaica (1981);
Caribbean Conservation Assoc., Environmental Legislation of the Commonwealth Caribbean (St. Michael, Barbados 1982).

Bahamas

Wild Animals Protection Act of 1968, sec. 21, 1968 legal supplement (an act to make provision for the control of the taking and export of wild animals).

Wild Birds Protection Act, vol. 1, ch. 28, p. 553, The Statute Laws of the Bahama Islands (cumulative ed. 1965).

Water and Sewerage Corporation Act of 1976, sec. 6, 1976 legal supplement (this act covers water rights, the protection of water resources, and the sewer system).

No entries for air, forest or pesticide laws.

Source: Caribbean Conservation Assoc., Environmental Legislation of the Commonwealth Caribbean (St. Michael, Barbados, 1982).

SOUTH AMERICA

Argentina

Wildlife Law

Argentina has a fairly comprehensive wildlife law which authorizes the establishment of wildlife preserves and regulates hunting and all forms of domestic and international commerce in wildlife. Law No. 22.421 (Boletin Oficial 3/12/81) and its regulations, Decree No. 691/81 of 4/7/81.

The law authorizes hunting based on studies of the rational use of wildlife, and empowers the executive agency to set seasons and bag limits accordingly, including the power to establish a closed season for a species. The law prohibits hunting on wildlife reserves, and also prohibits certain hunting methods. Permits are required for commercial, sport or scientific hunting.

Permits are needed for any internal or external commerce or trade in wildlife or wildlife products, with detailed permit requirements, such as the species, number, intended use and place of origin. The regulatory authority has power to set further standards.

Bolivia

Bolivia has a Health Code (Decree Law No. 156929 or 7/18/78) which covers all types of environmental pollutants. The extensive provisions on the water resource require the Health Authority to control sources of potable water and water quality. It prohibits indiscriminate discharges of solid waste and requires present or planned industries to obtain an authorization from the Health Authority to discarge wastes into water bodies. The Health Authority is to control emissions into the air, and industrial sources of air pollution are required to obtain an authorization from the Authority. The Health Code also requires the Health Authority to create the policy and systems for rational solid waste management in the country.

Bolivia's Foresty Law, Decree Law No. 11686 of 8/13/74 (G.O. 8/15/74), provides for both the development and protection of the forest resources which cover 40% of the country. Permits are required for felling trees on State lands, and several measures are designed to protect forests in designated watershed areas and on steep slopes (it is prohibited to cut forests on slopes greater than 45 degrees). Reclamation and reforestation are encouraged with tax and other incentives.

The Wildlife Law, Decree L-w No. 12,301 of 3/14/75 (G.O. 3/17/75), requires permits for the hunting and commerce of wildlife species. The law provides for establishing parks and refuges, and for a list of protected species. These are to include, in general, songbirds and other decorative birds, as well as rare species protected by the International Union for the Conservation of Nature. Although the law requires the Forestry Development Center to implement these provisions with regulations, none had been promulgated by 1979.

Source: US MAB Draft Environmental Report on Bolivia (1979).

Brazil

Wildlife Laws

Brazil's wildlife law states that wild animals of whatever species are property of the State, and their taking is prohibited with the exception of game species regulated by federal authorities. Law No. 5197 of January 3, 1967 (Diario Oficial 1/5/67). Hunting regulations set seasons and bag limits by region for huntable species, which include deer, pacas, armadillos, capybaras, tinamous, curassows, ducks, snipe, quail, alligators and iguanas. Portaria No. 2706 of 2/17/72. An annual permit, valid for a given region, is required in order to engage in hunting. Professional hunting is prohibited, as is trade in hunted wildlife.

Over fifty species of wildlife and plants are officially declared as endangered species, including mammals, birds, reptiles, and plants. It is strictly forbidden to seize, hunt, sell, transport or export these species or their products, with the only exception being for scientific purposes. Portaria No. 303 of 4/29/68.

Brazil was one of the first countries to limit wildlife exports, and the law prohibits any trade, internal or external in wildlife or wildlife products except for animals bred in captivity in registered breeding farms, or for limited scientific purposes. Any authorized trade between States or abroad requires a special permit by the Brazilian Institute of Forestry Development (IBDF).

Environmental Laws

Brazil has pursued a vigorous program to develop the Amazon Basin, which it promotesby such methods as an income tax rebate for moneys spent on clearing Amazon forests. This policy has, however, become tempered in recent years by others, such as a requirement that property holders in the Amazon leave one half of their land forested (a law difficult to enforce), and the startling growth of their national park system. Brazil's national parks now total 8,351,383 hectares, most of which were established in the last few years.

Colombia

Wildlife Laws

Colombia's extensive wildlife legislation (Decree 1608 of 7/31/78) requires permits for all types of hunting except subsistence hunting and imposes many conditions on the taking of animals for scientific or commercial use. Only specified species may be hunted within seasons set by INDERENA, the national wildlife agency, and no birds have been included as huntable species.

Colombia regulates export trade in wildlife by a system of permits and quotas. The export of live animals is additionally restricted to zoos or institutions of scientific study authorized by the national government (Decree 2811 of 1974), and apparently must also be produced in a captive breeding situation (Resolution No. 103 of 10/17/78). These laws apply in all the national territory, including free ports and zones, an excellent provision which avoids enforcement problems encountered in other countries.

Colombia has one of the oldest park systems in South America, founded in 1948 (the first U. S. park, Yellowstone, was created in 1872), and greatly expanded in 1977. Almost four million hectares are included in a system of national parks, or 3.5% of the country's land area. However, enforcement of these parks is a problem with Colombia's 370 park guards spread over the four million hectares.

Ecuador

Ecuador's Wildlife Law (1970) establishes an extensive regulatory system for hunting as well as the protection of wildlife. It restricts the taking of birds, animals and fish that are beneficial to agriculture, prohibits the taking of nesting females or young, and bans the taking of endangered species. Regulations list ten endangered species and establish guidelines for export quotas.

Half of Ecuador is still forested, primarily in the eastern portion. The government, however, encourages colonization by offering farmers 50 hectares (125 acres) of free land if they farm it within five years; most of this land, however, is poorly suited for agriculture. In the cut-over central and coastal sections, arid land has increased by 31% in the last 25 years, and now accounts for ten percent of these lands. Experts agree that much of this desertification problem in Ecuador could be solved by the use of existing soil conservation methods.

Ecuador's Forestry laws are considered good, but not often enforced. On national territory, the law provides for protective forests which serve to conserve soil, water or forest life, and production forests which are meant to be rationally utilized. Owners of private forests may only exploit them with the authorization of the Department of Forestry. Private forests may also be declared protected forests, which obliges the owner to carry out forestry or reforestation projects, and prohibits the grazing of cattle. The law makes available some loan assistance for such projects.

Ecuador's Health Law prohibits the discharge of any substance into the air, soil or water without treating it so as to be inoffensive to human health. A 1976 Environmental Contamination Law provides guidelines for the prevention and control of environmental pollution. Agencies are authorized to regulate both water and air pollution by requiring adequate treatment of wastes, with limited requirements for environmental impact surveys by the project sponsor. Various agencies are authorized to regulate the use of pesticides, and the Water Resources Law (1972) prohibits their use near water sources.

Source: US MAB Draft Environmental Report on Ecuador (1979).

Peru

The Forestry and Wildlife Law (Decree Law No. 21147, 5/13/75) regulates the hunting, use and export of wildlife. It authorizes the setting of hunting seasons and the protection of endangered species from hunting or export.

The forestry provisions in this law require that people obtain an authorization from the Ministry of Agriculture before they can clear or exploit forest resources. The authorization is to state the amount and species to be removed and specifies reforestation programs. It further establishes protected forests for soil and water conservation, which are to be left undisturbed, and conservation units such as parks and reserves. The Ministry is also placed in charge of reforestation programs.

Peru's General Water Law (Decree-Law No. 17.752 of 7/24/69, E.C. 7/26/69) prohibits the discharge of wastes into fresh or marine waters that may endanger human health or contaminate the water. Wastes may be discharged if they have received proper treatment. The Health Authority is to establish limits for the discharge of harmful substances. Supreme Resolution No. 193 of 4/30/62 regulates the import and marketing of pesticides, and requires their registration, labelling and inspection. As of 1978, there was no law regarding air pollution.

Source: US MAB Draft Environmental Report on Peru (1979): Myers, (1980).

Paraguay - Environmental Laws

1. Article 132 of the Paraguayan Constitution provides:

"The state shall conserve the forestry resources of the country as well as other renewable natural resources. To this end, it shall issue guidelines for rational conservation, renewal and exploitation of resources."

2. Treaties. Treaty obligations under Paraguayan law take precedence over internal legislation and regulations.

A. Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)(1973); Paraguay signed the treaty on February 13, 1977.

B. Convention on Nature Protection and Wildlife Preservation in the Western Hemisphere (1940); Paraguay signed the treaty on April 10, 1979, and exchange was deposited on January 30, 1981.

3. Forestry Law No. 422 of November 26, 1973. This law creates the National Forestry Service under the Ministry of Agriculture and Cattle-raising (MAG). The Service is to perform an inventory of all forest lands to determine which are for production, protection or special use; administer a Forestry Fund established in Chapter VIII; determine and manage the zones of national forest reserves; and to regulate the use of privately owned forests. Article 12. Lands may be expropriated for public purposes including the control of soil erosion, protection of watersheds and farming, and for tourism. Article 22.

Permits are required for any forest use of forest lands (article 24), defined as any lands (public or private) with the ecological characteristics for producing wood and other forest products. The "irrational use" and devastation: of trees in such areas is prohibited (article 23). The law also prohibits the cutting of trees near the headwaters or natural course of waters (articles 31, 32).

Uses of protected forests and special forests are more limited, but may be made for "improvement" or the "national welfare". The law establishes rules for logging in national forests (articles 35-38).

All farm properties greater than 20 hectares (50 acres) must maintain 25 percent of its area in natural forest. If it lacks such acreage the owner must reforest an area equivalent to 5 percent. Article 42. Chapter VII provides tax exemptions and deductions for forestry plantations. Chapter VIII establishes a Forestry Fund to finance plantations. Chapter VIII establishes a Forestry Fund to finance the Forest Service by authorizing a one-time public appropriation, followed by the deposit of income from fees, permits and royalties. The law is effective January 1, 1974.

4. Regulations for Law No. 422 of the Forest Service issued by Decree No. 11,681 of January 6, 1975.

This regulation further details the administrative structure of the Forest Service and a Forestry Advisory Council, as well as the workings of the Forestry Fund. It also prohibits the colonization or clearing of land in Permanent Industrial Forestry Units to be established by the Ministry of Agriculture and Cattle-raising.

Paraguay - Wildlife Laws

1. Wildlife Decree, Decree No. 18796 of Nov. 4, 1975 (Gaceto Oficial Nov. 14, 1975).

This decree declares the protection of the Government over all species of wildlife living temporarily or permanently in the Republic. One of its expressed purposes is to initiate fauna repopulation, especially for the more scarce or endangered species, citing the diminishing numbers of many species.

Article 2 of the Decree prohibits the hunting, commerce, import or export of all species of wildlife as well as their parts or derived products.

Wildlife is defined in article 10 as mammals, birds, reptiles and amphibians, excepting those declared as agricultural pests (article 7). The Decree provides for penalties and forfeitures as well as an account into which the proceeds of any penalty are to be paid, to be used for the purposes of the Decree. The Minister of Agriculture and Cattle-raising (MAG) is responsible for administering the Decree.

VENEZUELA

Wildlife Laws

Venezuela's wildlife laws provide for the establishment of wildlife reserves and for the control of hunting, trade and export of wildlife and their products. Law for the Protection of Wildlife of August 11, 1970; Resolution No. 92 of 11/28/79 (G.O. 12/9/79) (hunting regulations). Annual permits are required for commercial, sport or scientific hunting, and commercial hunting is carried out based on "rational handling plans." The law prohibits certain methods of hunting and the hunting of animals with their young.

Huntable species include deer, rabbits, opossums, coatis, nutrias, gallinules and ducks, and a season is fixed for each. Total production is afforded the giant armadillo, spectacled bear, giant otter, most cat species, manattees, cinnamon teal and two curassows and snipes.

The Ministry of Environmental and Renewable Natural Resources must issue a permit to authorize any wildlife trade or export. Such trade cannot be done during the closed season for the species in question.

ACKNOWLEDGEMENTS

The staffs of the University of Georgia Science Library Reference Department, Inter-library Loan Office, and Computer Literature Search Service were very helpful, especially Nell Evans. Candy Yelton rendered invaluable assistance in accumulating and organizing the bibliographic material. Linda Kundell, Jan Ballard, and Katie Bishop performed the numerous secretarial chores associated with preparing a manuscript of this sort. The Administrative Staff of the Zoology Department, University of Georgia helped in a number of ways to make our work easier, particularly Ann Clark, Jeannie Edwards, and Denise Stockton. Joshua Laerm, as Senior Investigator on another project in Rappole was involved concurrently with the migration synthesis, was most understanding in allowing flexible working hours to be arranged during the two years that this document was in preparation. Personnel of the Fish & Wildlife Service were helpful in advising us as to the proper emphasis and direction of the manuscript as well as providing information on game laws, conservation efforts and breeding bird surveys.Especially helpful in this regard were Curtis Freese, Chandler Robbins, and Mark Shaffer. The U. S. Dept. of Justice helped us to obtain information on laws in Latin American countries, especially Beatriz Stock, their Foreign Laws specialist. The U. S. Dept. of State also assisted in providing data on foreign laws. Nancy Hammond, Program Administrator for the World Wildlife Fund, helped to keep the administrative problems to a minimum. Roy Tomlinson and Lillian Birkenstein allowed us to borrow Mexican names from their excellent manuscript (now a publication) on this topic.

Mario A. Ramos O., Lisa Neuwirth Yoder, Mike Yoder, Kevin Ballard, Jonnie Fisk, Sergio Barrios and Isabel Valdovinos helped with field work in Mexico. Dr. Alejandro Estrada, Director of the University of Mexico's (UNAM) Field Station in the Tuxtlas allowed us use of the Station facilities during our investigation of the effects of forest removal on avian migrants. Mrs. Jimmie R. Picquet, Director of the Conner Museum, Texas A&I University, kindly permitted use of staff time and facilities of the Museum during the latter stages of the project. Many researchers contributed information on their interests and work related to migrants (Appendix 8) for which we are extremely grateful. Allan Phillips reviewed the manuscript and made numerous helpful suggestions. J. Peter Myers reviewed portions of the text as well. To all of these people and organizations we express our debt and heartfelt thanks. Finally, we thank our families for moral support during this project.

☆ U.S. GOVERNMENT PRINTING OFFICE : 1983 O - 413-121

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1-15-84